Environmental Notification Form

Beverly Depot Station Parking Garage

Massachusetts Bay Transportation Authority

Submitted to:	**Executive Office of Energy and Environmental Affairs** **Massachusetts Environmental Policy Act Office**
Submitted by:	**Massachusetts Bay Transportation Authority** **10 Park Plaza** **Boston, MA 02116**
Prepared by:	**AECOM Technical Services, Inc.**

August 2011

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: ____________________

MEPA Analyst: ______________

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Beverly Depot Station Parking Garage		
Street Address: 88, 100-102, 112 Rantoul Street & 60R Pleasant Street		
Municipality: Beverly, MA	Watershed: North Coastal	
Universal Transverse Mercator Coordinates: 750000N, 200000 E	Latitude:42°32’43.27”N Longitude:70°53’05.11”W	
Estimated commencement date: December 2011	Estimated completion date: June 2013	
Project Type: Transportation	Status of project design: 60 %complete	
Proponent: Massachusetts Bay Transportation Authority		
Street Address: 10 Park Plaza		
Municipality: Boston	State: MA	Zip Code: 02116
Name of Contact Person: Lois Baxter		
Firm/Agency: Massachusetts Bay Transportation Authority	Street Address: 10 Park Plaza, Room 6720	
Municipality: Boston	State: MA	Zip Code: 02116
Phone: (617) 222 3124	Fax: (617) 222 1557	E-mail: lbaxter@mbta.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes ☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes ☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes ☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes ☒No

(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?
Transportation: 301 CMR 11.03(6)(b)15.

Which State Agency Permits will the project require?
MassDOT Highway Access Permit

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres:
Final design and construction will be funded by Federal Transit Administration and local (City or State) matching funds. The local source of funding has not been determined.

Summary of Project Size & Environmental Impacts	**Existing**	**Change**	**Total**
LAND			
Total site acreage	1.17		
New acres of land altered		+0.12	
Acres of impervious area	1.17	+0.12	1.29
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration		0	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	0	+168,542	168,542
Number of housing units	0	1	1
Maximum height (feet)	0	54	54
TRANSPORTATION			
Vehicle trips per day	200	772	972
Parking spaces	100	386	486
WASTEWATER			
Water Use (Gallons per day)	0	0	0
Water withdrawal (GPD)	0	0	0
Wastewater generation/treatment (GPD)	0	0	0
Length of water mains (miles)	0	0	0
Length of sewer mains (miles)	0	0	0

Has this project been filed with MEPA before?
☐ Yes (EEA #__________) ☒No

Has any project on this site been filed with MEPA before?
☐ Yes (EEA #__________) ☒No

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

Describe the existing conditions and land uses on the project site:

The project site is located on Rantoul Street (Route 1A) and includes parcels indentified as 88, 100-102, 112 Rantoul Street and 60 Rear Pleasant Street. The site has a total area of approximately 63,500 square feet or 1.46 acres. The project site is bordered on the east by Rantoul Street, which contains mixed commercial and residential uses near the site and residential uses further east. Surrounding property to the north and south is also a mix of residential and commercial uses. Property directly west is owned by the MBTA and contains the commuter rail line with the Beverly Depot Station about one block further north. The site location is predominantly urban with limited protected natural resources nearby, the closest being the Bass River approximately 0.13 miles west.

The project site consists of a number of early 20th century residential structures, a garage and a gas station. The existing buildings in the site are proposed to be demolished to accommodate the proposed new development. There is an empty lot which is part of the site, behind the existing buildings. A large condominium building, recently completed, anchors the block on its northern side and a 1980's-era seven-story condominium development and restaurant abut the proposed garage site to the south. Below is a brief discussion of the properties located in the site:

88 Rantoul Street: This parcel has an area of approximately 5,148 square feet or 0.12 acres. It consists of a two-family, wood-frame, front gable residential structure. The building was constructed in 1900, and is located behind 100 Rantoul Street.

100 -102 Rantoul Street: The 100-102 Rantoul Street parcel has a total area of approximately 5,593 square feet or 0.13 acres. 100 Rantoul Street consists of a residential building constructed in 1900. Built as a one-family, wood-frame, side gable home, it was later converted into a two family residence. 102 Rantoul Street consists of a garage built of wood and concrete block and associated with 100 Rantoul Street. It was constructed in 1920.

112 Rantoul Street: The parcel has an area of approximately 9,858 square feet or 0.23 acres. It has a one story gas station, which appears to have been built as a gas station and garage, in three parts. It was constructed in 1931.

60 R Pleasant Street: The parcel has an area of approximately 42,901 square feet or 0.98 acres. 60 Rear Pleasant Street is an empty lot which appears to have had railroad related structures on it. Currently, this site is used as surface parking lot.

Describe the proposed project and its programmatic and physical elements:
The project is being developed in close coordination between the Massachusetts Bay Transportation Authority (MBTA) and the City of Beverly. The goal of the project is to provide an adequate supply of MBTA-owned parking spaces at the Beverly Depot commuter rail station to satisfy the current and future parking needs of the station. Despite its status as the second busiest station in the north side of the MBTA commuter rail system, the MBTA does not own or control any parking in the area. Approximately 100 surface parking spaces (currently in private ownership) are located on the 60R Pleasant Street property. The limited supply of private parking available in the area could be changed or sold any time. As a result of the scarcity in parking, MBTA customers use on-street parking spaces in the commercial and residential areas. Not only does this adversely impact the neighborhoods, but it directly affects the financial viability of the downtown commercial district due to the fact that on-street parking is taken up by commuters, and customers wishing to access the commercial district find it hard to do so.

To address this parking shortage and impact on the downtown, the MBTA is proposing to build a four-story, approximately 500-vehicle structured parking facility to serve the Beverly Depot station on the existing parking lot parcel. The new parking garage would occupy 40,928 square feet (1.01 acres) of the total area of the existing project site. Additionally, part of the new garage is proposed to extend further to the west to include approximately 3,552 square feet within the existing MBTA railroad right-of-way, thus resulting in the total area of 44,480 square feet or 1.12 acres for the new parking garage. The proposed garage would include an approximately 168,542 sq ft structure. The parking structure is designed as an Open Parking Garage, as permitted by the Special Provisions of 780 CMR, Massachusetts State Building Code (MSBC §509.3). It will include sustainable elements in the building design including: photo-voltaic roof panels, use of local materials and products with recycled material content where possible, and energy efficient lighting (LED). In addition, at least six electric vehicle charging stations will be provided in the garage. Construction is anticipated to begin in December 2011 and take approximately 18 months to complete.

Vehicular access to the garage is planned at Level 1 from Court Street and at Level 2 from Rantoul Street. A center bay vehicular circulation ramp connects each level. The garage includes two egress stairs, two passenger elevators, and a caged publically-accessible bicycle storage area. The new parking facility will enhance commuter rail patrons' use of the Beverly Depot Station with reductions in drop-off's due to expanded parking availability, and will help the MBTA fulfill transportation mitigation commitments made as part of the Central Artery/Tunnel (CA/T) construction project. The MBTA's Route 451 bus will circulate/stop adjacent the garage, thereby making it an intermodal center with connection to the Beverly Depot commuter rail station.

Additionally, the City of Beverly is currently developing a parking management plan to control and enforce parking in the downtown. The major component of this plan includes installation of short and long term parking meters. The use of short term meters would ensure the parking spaces are available for the customers visiting the commercial district. The long term parking meters would be priced comparable to the cost of garage parking.

The MBTA will construct the new parking facility to allow the future development of a mixed-use Transit Oriented Development (TOD) along the Rantoul Street frontage by others, consistent with the Commonwealth of Massachusetts and City of Beverly TOD goals. Layout and site organization of the garage structure has been developed to provide an 80'-deep parcel along Rantoul Street reserved for the TOD, as well as future-build potential above the garage. Infrastructure pathways and utility distribution corridors will be incorporated into the design of the parking structure to simplify the ability of the future development to be integrated into the project site. There is adequate roadway and municipal infrastructure capacity to support the garage and the proposed TOD development. While the parking garage will be designed and constructed in a manner that is compatible with a future TOD, it does have independent utility and does not require the future TOD development to be constructed. The project will also include pedestrian enhancements and streetscape on the public walkways connecting the parking facility to the station, as well as site improvements to the portions of the site reserved for future development.

The project is located in urban area with adequate transportation infrastructure already in place. The long-term impacts associated with the project are negligible, since most of the cars that would use the facility are currently accessing the area to utilize the on-street parking. The Federal Transit Administration has determined no adverse effect on the project site and the adjacent property, 60 Pleasant Street, which is eligible to be listed on the National Register of Historic Places, provided that the Massachusetts Historical Commission (MHC) is provided the opportunity to review the design of the new parking facility when plans are complete. The MHC concurred with this determination.

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:
The MBTA issued an Expression of Interest (EOI) in 2008 to gauge the interest of landowners to sell their respective properties to the MBTA for development of additional station parking. Five property owners responded to the EOI. Two of the property owners submitted proposals for their property both in whole and in part, for a total of seven possible locations.

The MBTA and the City of Beverly reviewed each of the submittals and evaluated the potential property against a set of evaluation criteria that had been established prior to the issuance of the EOI. The seven evaluation criteria included existing environmental conditions (e.g. Will the site result in excessive clean up costs for the MBTA), cultural resource impacts (e.g., Will the project have any Adverse Effect on any cultural resource or will it result in a taking of any 4(f) property?). The MBTA and the City developed a three tiered rating and screening scale and developed an evaluation matrix. This matrix was used to narrow down the seven sites to two for further consideration. The two sites were:

1. The entire Windover location (composed of parcels 88 Rantoul Street, 100-102 Rantoul Street, 112 Rantoul Street and 60R Pleasant Street).
2. The Auto Dealership location (composed of parcels at 199 and 211 Rantoul Street).

The MBTA then obtained appraisals for those two locations. Based on the results of the evaluation screening process, as well as the results of the appraisals, the MBTA and the City of Beverly concluded that the Windover location was the best and most appropriate site to build a parking garage and was the site that best met the overall purpose and objective of the project and did so in a manner that met all of goals and criteria established for the project.

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative: The mitigation measures proposed to offset the impacts of the preferred alternative include:

- Remediate contaminated sites
- Implement construction best management practices
- Signalize and restripe roadways
- Implement parking management plan
- Integrate MBTA bus service into the new commuter parking facility
- Convene periodic forums to inform the public of the project development process
- Use sympathetic material, scale and design of the garage in accordance with the Secretary of Interior standards to mitigate any potential impacts to the 60 Pleasant Street building.
- Transmit design plans for the Massachusetts Historical Commission's review

If the project is proposed to be constructed in phases, please describe each phase: The project will be constructed in one phase over an 18 month period.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?

☐Yes (Specify___________________________________)

☒No

if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;

If yes, describe how the project complies with this plan.

____

Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes ___ No;

If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

____

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (See http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)

☐Yes (Specify___________________________________) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐Yes (Specify___________________________________) ☒**No**

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify___________________________________) ☐No

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site? ___Yes **X No**;

if yes, identify the ORW and its location. ____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? **_X_ Yes** _ No; if yes, identify the water body and pollutant(s) causing the impairment: **Bass River, fecal coliform**.

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes **_X_ No**

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

The project involves disturbance of greater than 1 acre of land. The Contractor will be required to prepare the appropriate Stormwater Pollution and Prevention plan in accordance with the NPDES General Permit for Construction Activities. Any site dewatering will also need to be coordinated with the NPDES General Permit for Construction Dewatering.

The first level of the parking garage will be at Court Street grade, with no parking below this level. As such, it is anticipated that the post development stormwater drainage pattern on the site will mimic the existing pattern, which drains to a municipal closed system in Court Street to Pleasant Street.

Given that the existing site is primarily a paved parking area, the post development stormwater rate and volume should not increase from those in the existing condition. The project will incorporate stormwater best management practices, such as oil/water separators. The design of stormwater treatment and storage methods will be evaluated in conjunction with Substainable Design Standards.

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? **Yes _X_** No ___; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification): ___.

The parcel located at 112 Rantoul Street is currently a Massachusetts Department of Environmental Protection (DEP) site with Release Tracking Number (RTN) – 3-26219. Lead and arsenic were detected in soil at this gas station site at concentrations above reportable concentrations (RCs) in 2006 during an environmental site assessment. Soil concentrations of lead and other metals in this site exceed MCP Method 1 standards and further assessment and/or remediation is necessary to determine if the site can be closed. Under the Massachusetts regulations, the owner of the site must complete this remediation by October 2013. Extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH) or dissolved metals in groundwater were not found to exceed the standard.

Redevelopment of the properties will be conducted in accordance with the MCP (310 CMR 40) and under the direction of a Licensed Site Professional (LSP). The Construction Specification Package will include appropriate remedial and Health and Safety measures to address the requirements of the MCP for these sites and state, federal, and local regulations. In the event additional hazardous materials are found at the Property, the Construction Specification package will include provisions for proper management of these materials in accordance with local, state and federal Regulations.

Is there an Activity and Use Limitation (AUL) on any portion of the project site? **Yes __X__** No ___; if yes, describe which portion of the site and how the project will be consistent with the AUL:

The parking lot located at 60 R Pleasant Street was the site of a known release of hazardous materials. The RTN of the site is 3-15798. The remediation of the site has been completed and all regulatory responsibilities have been met. As part of the remediation, an AUL was placed on the deed to the parcel. The AUL was implemented to reduce exposure to residual contaminants and to achieve a level of No Significant Risk and site closure. The AUL does, however, allow for development of the Property as multi-family residential or commercial and would therefore not prohibit the proposed plans as a parking garage and/or mixed use development.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? Yes ___ **No** _X_; if yes, please describe:____________________________________

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

Solid waste generated during demolition of the buildings will be considered for re-use, recycling and disposal in accordance with MBTA specifications Section 02221- Demolition. The demolition waste materials will be removed from the project site and legally disposed of in an EPA-approved landfill acceptable to authorities having jurisdiction.

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes __________ No ___; if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

The presence of asbestos containing materials (ACM) on the project site is not known at this time. The selected contractors will be required to conduct an assessment of the site to determine if ACM is present. If the assessment finds ACM, they will be handled according to Massachusetts Department of Environmental Protection (MassDEP) asbestos regulations at 310 CMR 7.15 prior to demolition.

Describe anti-idling and other measures to limit emissions from construction equipment:

Trucks will not be permitted to idle more than five (5) minutes in accordance with Massachusetts General Law (M.G.L) Chapter 90, Section 16A.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ **No** ___X____; if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the “outstandingly remarkable” resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River? Yes ___ No ___ ;
if yes, specify name of river and designation: _____________;
if yes, will the project will result in any impacts to any of the designated “outstandingly remarkable” resources of the Wild and Scenic River or the stated purposes of a Scenic River. Yes ___ No ___;
if yes, describe the potential impacts to one or more of the “outstandingly remarkable” resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.

   A. ENF Distribution List
   B. Figure 1 – Locus Map
   C. Figure 2 – Existing Conditions
   D. Figure 3 – Environmental Constraints
   E. Figure 4 – Proposed Conditions
   F. Figure 5 – Elevation
   G. Figure 6 – Overall Perspective

   Other: Appendices
   A. Historic Resources Report
   Massachusetts Historic Commission concurrence letter dated April 21, 2009
   B. Traffic Study Report

2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries. See Figure 1 - Locus Map
3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities. See Figure 2 – Existing Conditions
4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts. See Figure 3 – Environmental Constraints
5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase). See Figure 4 - Proposed Conditions, Figure 5 – Elevation, and Figure 6 – Overall Perspective
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
7. List of municipal and federal permits and reviews required by the project, as applicable.

   As an entity of the Commonwealth of Massachusetts, the MBTA is generally exempt from the requirements of municipal permitting programs.

   Federal permits and reviews:
   - Categorical Exclusion under 23 CFR 771.117(d)(4)(10);
   - Section 106 of the National Historic Preservation Act of 1966 as regulated through 36 CFR Part 800 Protection of Historic Properties

   Federal permitting and review has been completed.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1) ___ Yes _X_ **No**; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	0	1.12	1.12
Internal roadways			

Parking and other paved areas	________	________	________
Other altered areas	________	________	________
Undeveloped areas	________	________	________
Total: Project Site Acreage	________	________	________

B. Has any part of the project site been in active agricultural use in the last five years? ___ Yes _X_ No; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use? ___ Yes _X_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes _X_ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes _X_ No; if yes, does the project involve the release or modification of such restriction? ___ Yes _X_ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _X_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _X_; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan

Title: **City of Beverly 2001 Master Plan** Date: **November 20, 2001**

B. Describe the project's consistency with that plan with regard to:

1) Economic development: **The project is consistent with the economic development goals of the City's Master Plan. The project helps improve the property values of declining commercial and industrial property values by expanding and improving off-street parking areas in the downtown district and encouraging upgrade of existing commercial areas. The proposed project consists of the construction of the new parking garage creating more parking spaces in the downtown and providing adequate parking facilities for the existing MBTA Beverly Depot Commuter Rail Station. Additionally, the proposal also includes accommodation for a potential future mixed-use Transit Oriented Development (TOD) constructed along Rantoul Street and possibly above the garage. The TOD components would include mixed use retail, office, apartments or other residential units. The project will include pedestrian enhancements and streetscape on the public walkways connecting the parking facility to the station, as well as some level of site improvements to the portions of the site reserved for future development.**

2) Adequacy of infrastructure: **The project is located in an urban area and there is adequate municipal infrastructure capacity to support the garage and the proposed TOD development. The proposed project consists of the construction of the new parking garage, which will provide adequate parking facilities for all commuter rail facilities and will improve traffic in the downtown.**

3) Open space impacts: **The open space goals of the Master Plan require proposed developments to control the amount and rate of the loss of open space to and improve upon the open space and recreational resources. The project is consistent with the open space goals since the proposed parking garage will be constructed on the existing surface parking lot parcel and will not result in the loss of any open space in the area.**

4) Compatibility with adjacent land uses: **The City's Master Plan requires projects to better regulate residential development to improve the quality of life of the residents and to maintain the character and value of all city properties. The proposed parking garage will replace the existing surface parking lot, which is located within a mixed commercial and residential use district. The proposed project does not change the land use of the project site and is therefore consistent with the Master Plan's goals.**

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: **Metropolitan Area Planning Council (MAPC)**
Title: **2008 MetroFuture Regional Plan** Date: **May 2008**

D. Describe the project's consistency with that plan with regard to:

1) Sustainable growth: **The sustainable growth goals of the Regional Plan require most new growth in suburban municipalities to occur near town and village centers and new growth to be designed to promote transit use. The proposed project is consistent with the sustainable growth goals since this project involves construction of a new commuter parking garage and a future TOD project in the downtown. This project addresses the parking shortage in the downtown commercial district and makes transit a more attractive option by improving service on existing lines and by extending the reach of service to new locations that can support it with transit-friendly land uses.**

2) Economic development: **The proposed project is consistent with the region's economic development goals, which require economic growth to be concentrated in certain areas and decrease economic development potential in areas slated for preservation. The proposed project is located in downtown district designated for mixed commercial and residential uses. The project helps improve the property values of declining commercial and industrial property values by expanding and improving off-street parking areas in the downtown district and encouraging upgrade of existing commercial areas. Additionally, the proposal also includes accommodation for a potential future mixed-use Transit Oriented Development (TOD) constructed along Rantoul Street and possibly above the garage. The TOD components would include mixed use retail, office, apartments or other residential units.**

3) Adequacy of infrastructure: **The project is located in an urban area and there is adequate municipal infrastructure capacity to support the garage and the proposed TOD development. The proposed project consists of the construction of the new parking garage, which will provide adequate parking facilities for all commuter rail facilities and will improve traffic in the downtown.**

4) Energy, air, water, and open space impacts: **The project site is urban, with limited protected natural resources nearby, the closest being the Bass River approximately 0.13 miles to the west. The project site is not located near wetlands. The project will incorporate sustainable design and construction practices, and intends to pursue Substainable Design Certification. The proposed parking garage will be constructed on the existing surface parking lot parcel and will not result in the loss of any open space in the area.**

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes _X_ No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes _X No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ___Yes ___No; if yes, have you received a determination as to whether the project will result in the “take” of a rare species? ___ Yes ___ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

3. Which rare species are known to occur within the Priority or Estimated Habitat?

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ No

4. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? ___ Yes ___ No; if yes, has a Notice of Intent been filed? ___ Yes ___ No; if yes, list the date and MassDEP file number: ______; if yes, has a local Order of Conditions been issued? ___ Yes ___ No; Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a Variance from the Wetlands regulations? ___ Yes ___ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean	__________________	____________________
Designated Port Areas	__________________	____________________
Coastal Beaches	__________________	_____________________
Coastal Dunes	__________________	_____________________
Barrier Beaches	__________________	_____________________
Coastal Banks	__________________	_____________________
Rocky Intertidal Shores	__________________	_____________________
Salt Marshes	__________________	_____________________
Land Under Salt Ponds	__________________	_____________________
Land Containing Shellfish	__________________	____________________
Fish Runs	__________________	_____________________
Land Subject to Coastal Storm Flowage	__________________	_____________________
Inland Wetlands		
Bank (lf)	__________________	_____________________
Bordering Vegetated Wetlands	__________________	_____________________
Isolated Vegetated Wetlands	__________________	_____________________
Land under Water	__________________	_____________________
Isolated Land Subject to Flooding	__________________	_____________________
Bordering Land Subject to Flooding	__________________	_____________________
Riverfront Area	__________________	_____________________

D. Is any part of the project:

1. proposed as a **limited project**? ___ Yes ___ No; if yes, what is the area (in sf)?____
2. the construction or alteration of a **dam**? ___ Yes ___ No; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes ___ No
4. dredging or disposal of dredged material? ___ Yes ___ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? ___ Yes ___ No
6. subject to a wetlands restriction order? ___ Yes ___ No; if yes, identify the area (in sf):
7. located in buffer zones? ___Yes ___No; if yes, how much (in sf) ______

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? ___ Yes ___ No

2. alter any federally-protected wetlands not regulated under state law? ___ Yes ___ No; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ___ Yes ___ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? ___ Yes ___ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

B. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes ___ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current ___ Change ___ Total ___
If yes, how many square feet of solid fill or pile-supported structures (in sf)?

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site:_____________________
Area of filled tidelands covered by buildings:____________
For portions of site on filled tidelands, list ground floor uses and area of each use:
____
Does the project include new non-water-dependent uses located over flowed tidelands?
Yes ___ No ___
Height of building on filled tidelands________________

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes ___ No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes ___ No; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ___ Yes ___ No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes ___ No; if yes, answer the following questions:
What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _________
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);

Will dredging impact the following resource areas?
Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__; if yes __ sq ft

If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?

If no to any of the above, what information or documentation was used to support this determination?
Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.
Sediment Characterization
Existing gradation analysis results? __Yes ___No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes ____No; if yes, provide results.
Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
    Confined Aquatic Disposal (CAD) ___
    Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:
A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ___ Yes ___ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes ___ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits
A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes__X__ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes__X__No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits
A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	________	________	________
Withdrawal from groundwater	________	________	________
Withdrawal from surface water	________	________	________
Interbasin transfer	________	________	________

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. ______________

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? ______Will the project require an increase in that withdrawal? ___Yes ___No; if yes, then how much of an increase (gpd)? ____________________

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_______	________	________	________
Capacity of water treatment plant (gpd)	_______	________	________	________

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes ___ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes _X_No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic ystems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	________	________	________
Discharge of industrial wastewater	________	________	________
TOTAL	________	________	________

	Existing	Change	Total
Discharge to groundwater	________	________	________
Discharge to outstanding resource water	________	________	________
Discharge to surface water	________	________	________
Discharge to municipal or regional wastewater facility	________	________	________
TOTAL	________	________	________

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_______	________	________	

____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	________	________	________
Treatment	________	________	________
Processing	________	________	________

Combustion			
Disposal			

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? _X_ Yes ___ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? _X_ Yes No; if yes, specify which permit: MassDOT Highway Access Permit

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	100	386	486
Number of vehicle trips per day	200	772	972
ITE Land Use Code(s):			

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. Rantoul St. (Rte 1A), North of Railroad Ave	14,000	116	14,116
2. Rantoul St. (Rte 1A), South of Railroad Ave	13,000	77	13,077
3. River St. South of Bridge St.	13,000	378	13,378

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

The traffic impact of the proposed 486-car garage for MBTA commuter rail use is minor. While the project does increase traffic, the level of new traffic to the street system is negligible, since most of these cars are currently accessing the area to utilize the on-street parking. (See the attached Traffic Study Report for additional information.)

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

The new parking facility will enhance existing and new commuter rail patrons' use of the Beverly Depot Station by providing additional dedicated parking and enhancing pedestrian access from the parking facility to the station. The MBTA's 451 Route bus

will circulate/stop at the garage thereby making it an intermodal center with connection to the Beverly Depot commuter rail station. The proposed garage will also have a caged publically accessible bicycle storage area to encourage bicycle access to the station. The streetscape design of the garage will focus on pedestrian safety and will provide improvements, including pedestrian amenities such as benches, bike racks, trash receptacles and lighting.

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes __X__No; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? _X_Yes __ No; if yes, generally describe:

This project is to provide an adequate supply of MBTA-owned parking spaces at the Beverly Depot commuter rail station to satisfy the current and future parking needs of the station.

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)? **N/A**

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

The new parking facility will increase the number of parking spaces for commuter rail patrons of the Beverly Depot Station, and will help the MBTA fulfill transportation mitigation commitments made as part of the Central Artery/Tunnel (CA/T) construction project. The proposed Beverly Depot Station Parking Garage project is also consistent with the goals of the City of Beverly's 2001 Master Plan, which includes creating more parking in the downtown and providing adequate parking facilities for all commuter rail facilities. The City of Beverly is currently developing a parking management plan to control and enforce parking in the downtown. The major component of this plan includes installation of short and long term parking meters. The use of short term meters would ensure the parking spaces are available for the customers visiting the commercial district. The long term parking meters would be priced comparable to the cost of garage parking.

The proposed Beverly Depot Station Parking Garage project is consistent with the goals of the Metropolitan Area Planning Council's (MAPC) 2007 Regional Bicycle Plan and 2010 Regional Pedestrian Transportation Plan (PedPlan2010). The Regional Bicycle Plan's goals include increasing bicycling and making bicycling part of "Standard operating procedure" for transportation in the region. MAPC seeks to achieve these goals by encouraging more trips by bicycle in each community and by implementing policies that have already been adopted at the state or regional level. PedPlan2010's goal is to increase walking throughout the Boston region. Its key policy goal is to ensure that all road and development projects accommodate pedestrians to the fullest extent that will facilitate walking as a convenient, safe and practical form of transportation.

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? _X Yes ___ No; if yes, specify which permit: **MassDOT Highway Access Permit**

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

The existing transportation facilities in the immediate vicinity of the project site consist of the Beverly Depot commuter rail station, which is currently served by on-street parking and the surface parking lot at the project site. The main entrance to the garage will be from Rantoul Street (Route 1A) which is a state-controlled highway. The garage entrance/exit will be built as a T-intersection with Rantoul Street. Vehicular access to the garage is also planned from Court Street which currently serves as the access to the existing surface parking lot. The MBTA's Route 451 bus will circulate/stop at the garage, thereby making it an intermodal center with connection to the Beverly Depot commuter rail station.

B. Will the project involve any
1. Alteration of bank or terrain (in linear feet)? __No________
2. Cutting of living public shade trees (number)? __No________
3. Elimination of stone wall (in linear feet)? __ No________

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

See response to Transportation Section III.

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes_X_No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? __ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	________	________	________
Length of fuel line (in miles)	________	________	________
Length of transmission lines (in miles)	________	________	________
Capacity of transmission lines (in kilovolts)	________	________	________

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ___Yes ___No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	________	________	________
Carbon monoxide	________	________	________
Sulfur dioxide	________	________	________
Volatile organic compounds	________	________	________
Oxides of nitrogen	________	________	________
Lead	________	________	________
Any hazardous air pollutant	________	________	________
Carbon dioxide	________	________	________

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes _X__No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes X_No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	________	________	________
Treatment, processing	________	________	________
Combustion	________	________	________
Disposal	________	________	________

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	________	________	________
Recycling	________	________	________
Treatment	________	________	________
Disposal	________	________	________

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?
___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? _X__Yes ___No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes __No; if yes, attach correspondence N/A

In accordance with 36 CFR Part 800 Protection of Historic Properties, Final Rule; the Federal Transit Administration has determined no adverse effect on the project site and the adjacent property, 60 Pleasant Street, which is eligible to be listed on the National Register of Historic Places, provided that the Massachusetts Historical Commission (MHC) is provided the opportunity to review the design of the new parking facility when plans are complete. The Massachusetts Historic Preservation Officer concurred on this determination on April 21, 2009. The concurrence letter from the Massachusetts Historical Commission is attached.

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _X__No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes__X__No; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes X_No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes ___ No; if yes, please describe:

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

The Rantoul Street properties consist of a number of early 20th century residential structures, a garage and an early 20th century gas station. 60R Pleasant Street is an empty lot which appears to have had railroad related structures on it. A large condominium building, recently completed, anchors the block on its northern side and a 1980's-era seven story condominium development and restaurant abut the proposed garage site to the south. Although the structures on the site consist of buildings 50 years old or older, none of them are considered eligible for the National Register of Historic Places since they lack integrity, setting and any significant architectural detailing. Abutting the property on the northwest side, 60 Pleasant Street is a nineteenth century warehouse that has been restored by the owner and is eligible for listing on the National Register of Historic Places. Not abutting the site, but within a one-block radius of the site is the Beverly U.S. Post Office, built in 1910 and individually listed on the National Register of Historic Places.

Construction of the 4-level parking garage will have no impact on the buildings on the site since they are not considered historic. Furthermore, the multi-story condominium structure (at 116 Rantoul Street) will shield the proposed project from any visual impact to the Beverly Post Office. The use of sympathetic materials, scale and design in accordance

with the Secretary of the Interior's standards will help mitigate any potential impacts on the warehouse at 60 Pleasant Street.

The proposed Beverly Parking Garage project is not expected to impact any historic resources. None of the historic resources in the vicinity of the project are proposed to be altered, nor does the project result in any additional noise or vibration impacts. The proposed Beverly Garage project will not directly or indirectly alter or change any element of any site listed on the State or National Register of Historic Places. The project does not result in additional commuter rail trips on the corridor, so there are no noise, vibration or visual impacts to historic properties that will result from the operation of the station. While the project does increase traffic, the level of new traffic to the street system is negligible (since most of these cars are currently accessing the area to utilize the on-street parking).

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

Appropriate design standards through the use of sympathetic materials will be employed for this location taking into consideration the existing adjacent historic structure. The FTA and Massachusetts Historic Commission has concurred that the project will have no adverse effect on historic properties.

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

(Name) The Salem News (Date) 9/6/2011

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

8/25/11		8/25/11	
Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
Andrew Brennan Name (print or type)		Joanne Haracz Name (print or type)	
MBTA Firm/Agency		AECOM Firm/Agency	
10 Park Plaza, Room 6720 Street		66 Long Wharf Street	
Boston/ MA/ 02116 Municipality/State/Zip		Boston/ MA/ 02110 Municipality/State/Zip	
(617) 222 3124 Phone		(617) 723 1700 Phone	

Beverly Depot Station Parking Garage ENF Distribution List

Two Full Copies, One Copy of First Three Pages and Project Description:

- Secretary Richard K. Sullivan, Jr.
  Executive Office of Energy and Environmental Affairs
  Attn: MEPA Office
  100 Cambridge Street, Suite 900
  Boston, MA 02114

One Copy:

- Department of Environmental Protection Boston Office
  Commissioner's Office
  Attn: MEPA Coordinator
  One Winter Street
  Boston, MA 02108

- MassDEP Northeast Region
  Attn: MEPA Coordinator
  205B Lowell Street
  Wilmington, MA 01887

- Massachusetts Department of Transportation
  Public/ Private Development Unit
  10 Park Plaza, Suite 3170
  Boston, MA 02116

- Massachusetts Department of Transportation Highway Division – District #4
  Attn: MEPA Coordinator
  519 Appleton Street
  Arlington, MA 02476

- Massachusetts Historical Commission
  The MA Archives Building
  220 Morrissey Boulevard
  Boston, MA 02125

- Metropolitan Area Planning Council
  60 Temple Place
  Boston, MA 02111

- Beverly Conservation Commission
  City Hall
  191 Cabot Street
  Beverly, MA 01915

- Beverly Board of Health
  Beverly Health Department
  90 Colon Street
  Beverly, MA 01915

- Beverly Historical Commission
  City Hall
  191 Cabot Street
  Beverly, MA 01915

- Beverly City Council
  City Hall
  191 Cabot Street
  Beverly, MA 01915

- Beverly Planning Board
  City Hall
  191 Cabot Street
  Beverly, MA 01915

- Massachusetts Coastal Zone Management
  251 Causeway Street, Suite 800
  Boston, MA 02114

- Division of Marine Fisheries
  Attn: Environmental Reviewer
  30 Emerson Avenue
  Gloucester, MA 01930

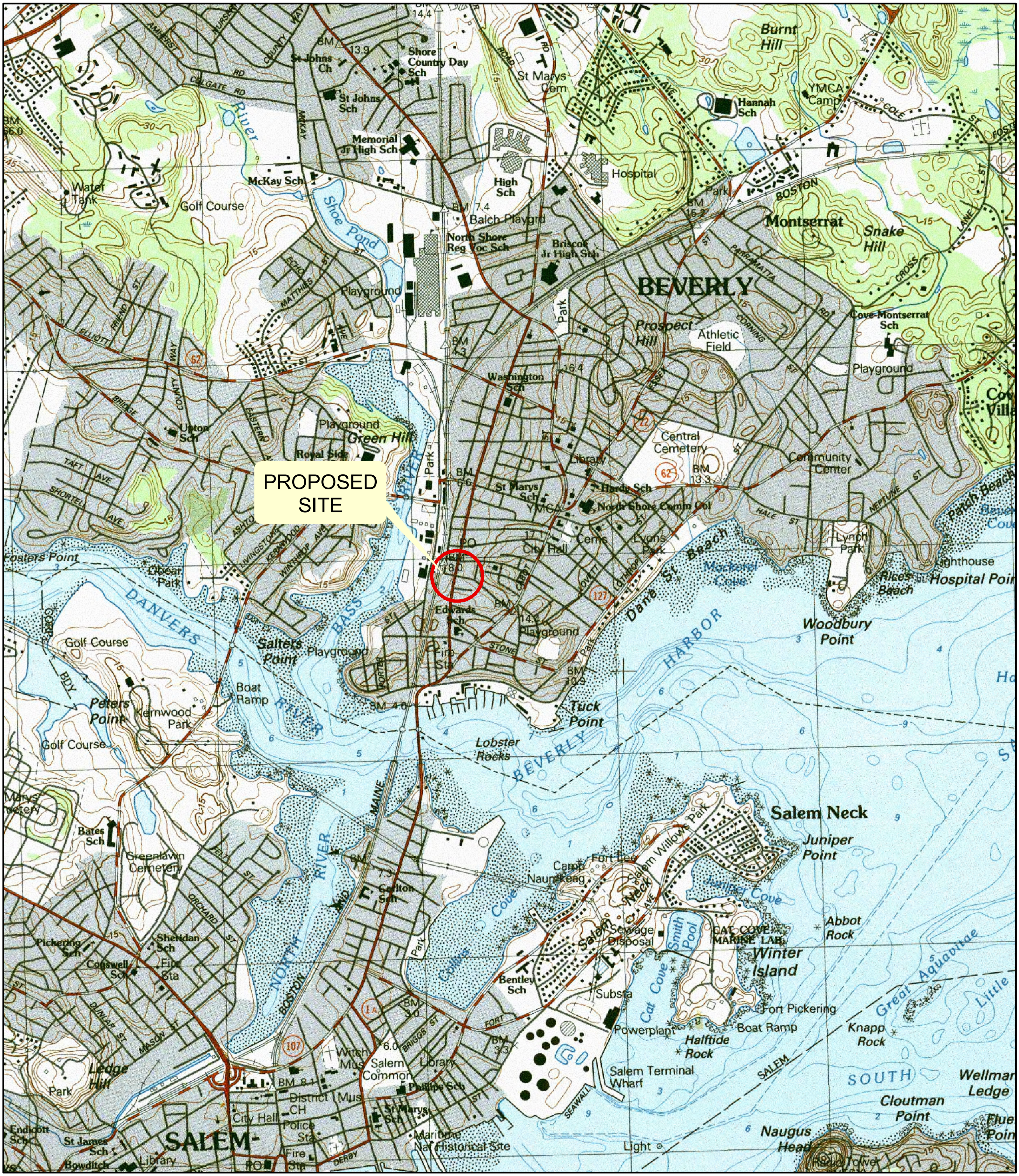
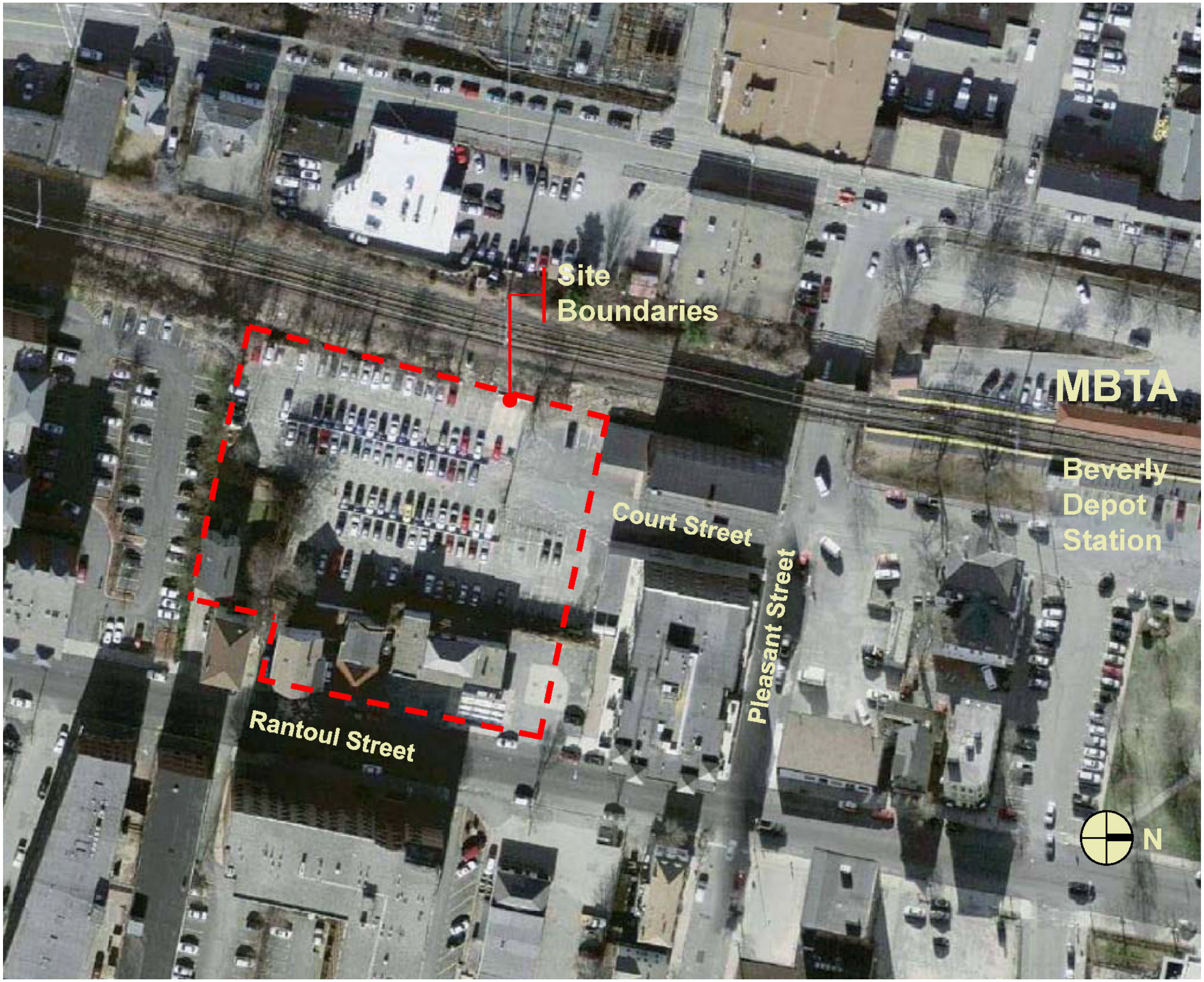
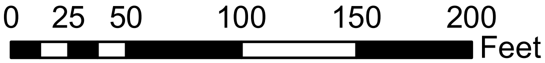


Figure 1 Locus Map

BEVERLY DEPOT STATION PARKING GARAGE

AECOM





Scale:1 in equals 83 feet

Figure 2 - Existing Conditions

BEVERLY DEPOT STATION
PARKING GARAGE

AECOM

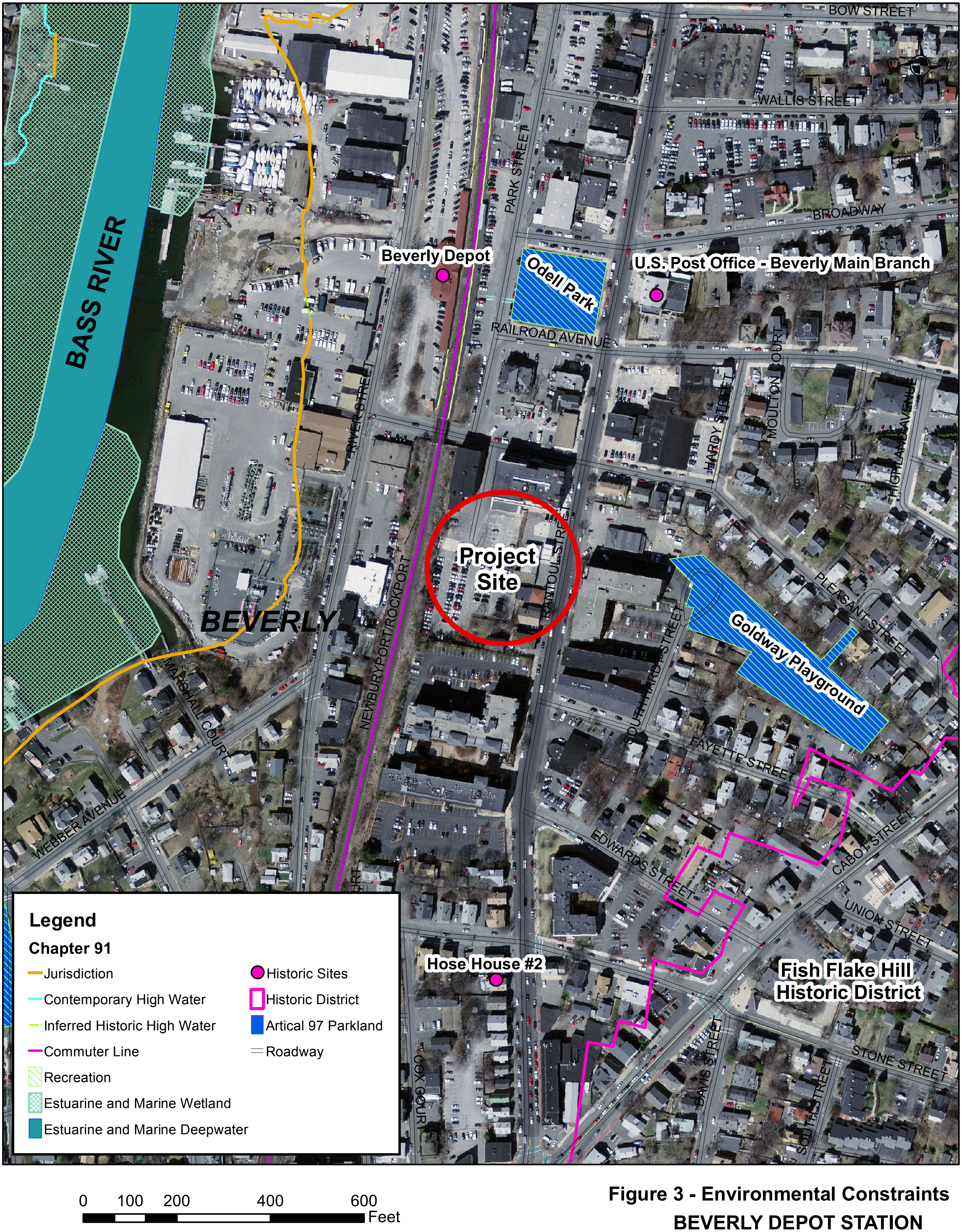


Figure 3 - Environmental Constraints

BEVERLY DEPOT STATION
PARKING GARAGE

AECOM

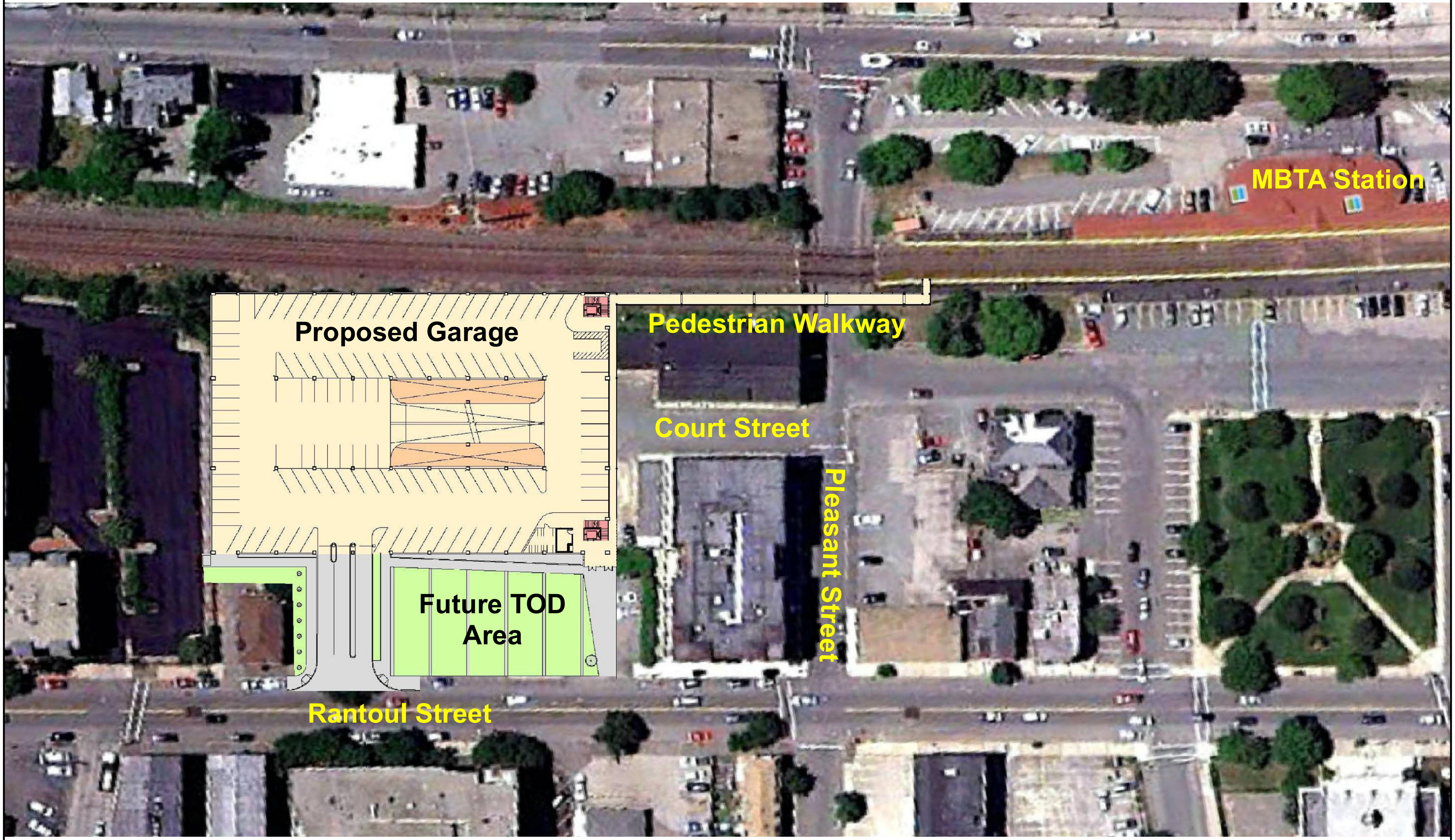


Figure 4 Proposed Conditions

BEVERLY DEPOT STATION
PARKING GARAGE

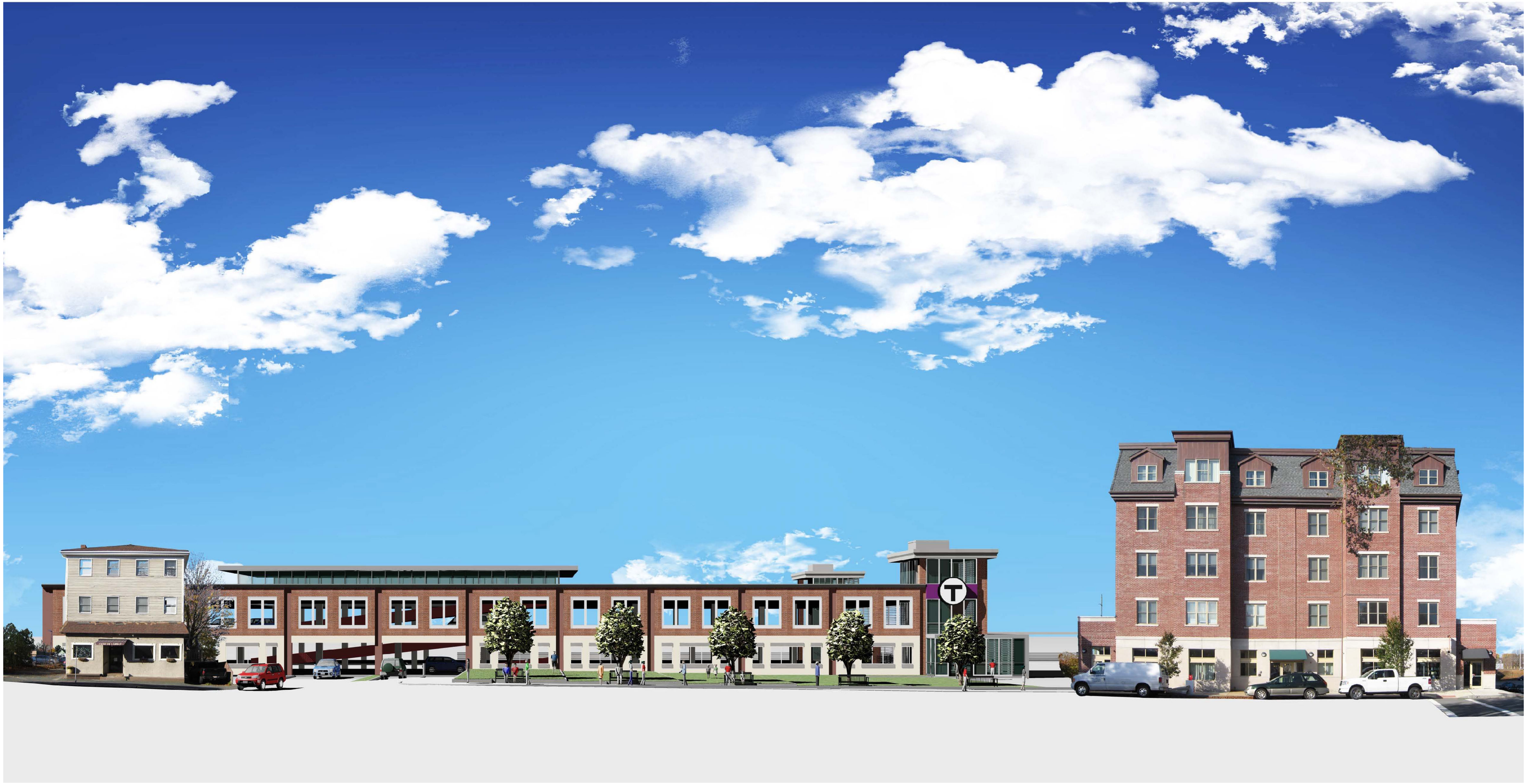


Figure 5 - Elevation

BEVERLY DEPOT STATION
PARKING GARAGE

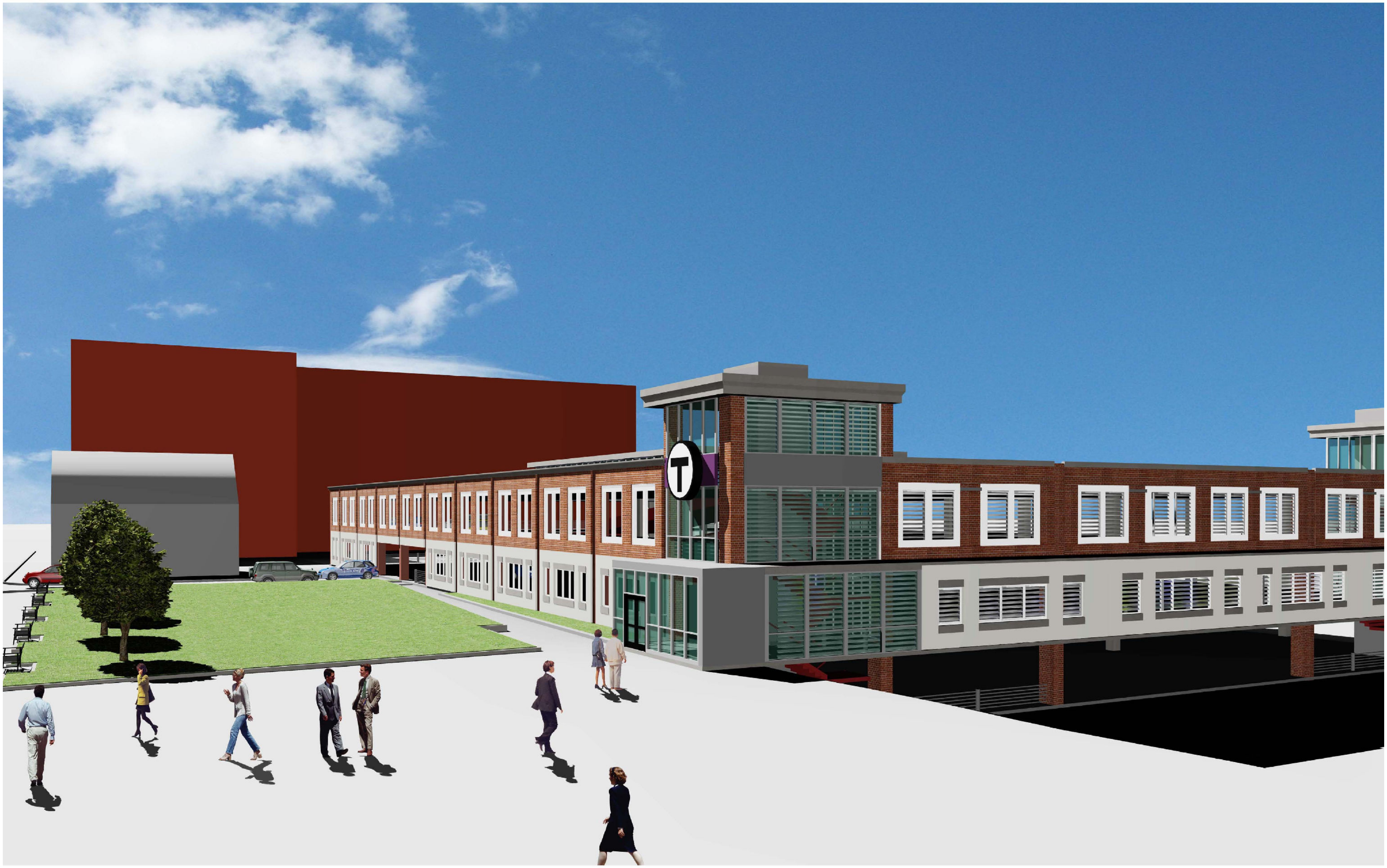


Figure 6 - Overall Perspective

BEVERLY DEPOT STATION
PARKING GARAGE

JANE CAROLAN, PRESERVATION CONSULTANT

187 Middle Road, Newbury, MA 01922

MBTA Contract No. W92PS03
Proposed Beverly Commuter Rail Parking
88, 100-102, 112 Rantoul Street, 60 R Pleasant St.

October 2008

Introduction

In June 2008, the MBTA requested expression of interest from property owners to sell real estate located within an 800-foot radius of Beverly Depot that would be capable of accommodating construction of a 500+ space parking garage for the MBTA as well as some level of on-site transit-oriented development (i.e. mix of residential housing units and/or floor space for commercial uses such as retail and office). Several proposals were received, and the MBTA has identified 88, 100-102, 112 Rantoul Street and 60 R Pleasant Street for consideration.

The MBTA has requested that Shaw (S&W) provide assistance in completing a Categorical Exclusion (CE) checklist for the two candidate properties, and prepare schematic concept drawings for layout of parking facility that could be built at each site per their access design parameters. As part of the team for this project, Shaw (S&W) has contracted Jane Carolan, Preservation Consultant, to review Section 106 impacts by the project on National Register properties located in or abutting the site under consideration.

Overview of Development of Beverly

The Town of Beverly, Massachusetts, founded in 1668, was originally part of Salem, MA. The town was founded as a commercial enterprise centered on fishing and related industries due to its proximity to local waterways, among them the Bass River. Early commercial development was located near Hale and Cabot Streets and gradually moved northward up the shores of the Bass River along Park Street. The introduction of the railroad in 1845, running from Salem to Ipswich to Boston, via Beverly with 6 trains daily, fanned economic development. Rantoul Street was laid out about the same time and houses and commercial establishments were quickly built along the street which was close to the rail-line while Cabot and Hale streets remained the town's civic center.

Since Beverly had such a deep harbor, it was a viable industrial area throughout the 19th century, able to handle large shipping vessels. From 1830-1870, the town population increased by 60%. With the fishing industry moving to larger commercial venues such as Gloucester, Beverly became involved in the shoe industry, making shoes and shoe machinery, and by 1865 fully 92% of manufactured goods were shoe related and Beverly was the 8th largest town in the region.

In 1869 Rantoul Street was lined with large brick shoe factories, and about the same time the Park Street Railroad Depot was enlarged. The town population kept growing and between 1870 and 1915 the growth rate was a staggering 252% with the industrial focus moving entirely from the river to the railroad. Other industries included furniture, boxes, printing and fuel storage (along the river). In 1896 the Beverly Depot was enlarged yet again, encouraging development in the area.

In the mid-1800s, Beverly Farms and Prides Crossing (in the eastern end of town) began to become a fashionable place for wealthy Bostonians and their friends to summer. It also attracted wealthy, local industrialists. Large estates and mansions were constructed, designed by nationally known architects and many of the local people were employed by the estates.

Perhaps the most important building in Beverly, the Shoe was "Built in 1903-06, using the revolutionary design of engineer Ernest L. Ransome, 'The Shoe' was the largest reinforced concrete structure in the world until 1937. The building has been ranked among architectural historians as one of the most significant industrial landmarks in the country.

As one of the largest factories in the world, The Shoe was the livelihood of thousands of workers and their families. For more than 70 years, it dominated the economic life of Beverly and its surrounding communities. Whole neighborhoods were developed to house the workers, and the residents thrived on an industry of manufacturing the machinery which made shoes." (From the web page of the Cummings Center. www.cummings.com) While United Shoe employed hundreds of people, smaller shoe manufactures slowly began to close.

As with many of the industrial towns in the northeast, manufacturing began to slow in the first quarter of the 20th century as industry moved south and eventually out of the country. By 1915 the population involved in local industrial had dropped to 70%. United Shoe closed in the early 1960s and the town suffered a decline in population and services. Beverly Farms has remained a vital community with some of the larger homes converted into institutional use. The city has reinvented itself as a small, attractive, commercially viable north shore community, with a number of diverse neighborhoods to choose from, and the town is again an active and vital city.

The Site

The site is located on Rantoul Street and includes 88, 100-102, 112 Rantoul Street. Sixty Rear Pleasant Street is an empty lot which appears to have had railroad related structures on it. This site consists of a number of late 19th century residential structures, a garage and an early 20th century gas station. There is an empty lot which is part of the site, behind the buildings. A large condominium building, recently completed, anchors the block on its northern side and a 1980's-era seven story condominium development and restaurant abut the proposed garage site to the south.

88 Rantoul Street, built as a two-family, wood-frame, front gable home and still in this use, the building was constructed about 1895, behind 100 Rantoul Street, probably as more workers moved into town for the shoe factories

100 Rantoul Street, built as a one-family, wood-frame, side gable home and converted into a two family residence, constructed around 1895.

102 Rantoul Street, garage built of wood and concrete block and associated with 100 Rantoul Street, ca. 1910.

112 Rantoul Street, one story gas station, appears to have been built as a gas station and garage, in three parts, ca. 1920.

Historic Preservation Issues

Although the structures on the site consist of buildings 50 years old or older, none of them are considered eligible for the National Register of Historic Places since they lack integrity, setting, feeling and any significant architectural detailing. The site, originally residential, is now surrounded by small commercial establishments. The rear lot, originally used for railroad related activities is now an empty lot, temporarily used for parking. Furthermore, the structures, although 19th and early 20th century, are not unique types of housing and the gas station, has had so many alterations as to have lost its integrity as well.

Abutting the property on the northwest side, 60 Pleasant Street is a nineteenth century warehouse that has been restored by the owner and is eligible for the National Register of Historic Places. Not abutting the site, but within a one-block radius of the site is the Beverly U.S. Post Office, built in 1910 and individually listed on the National Register of Historic Places.

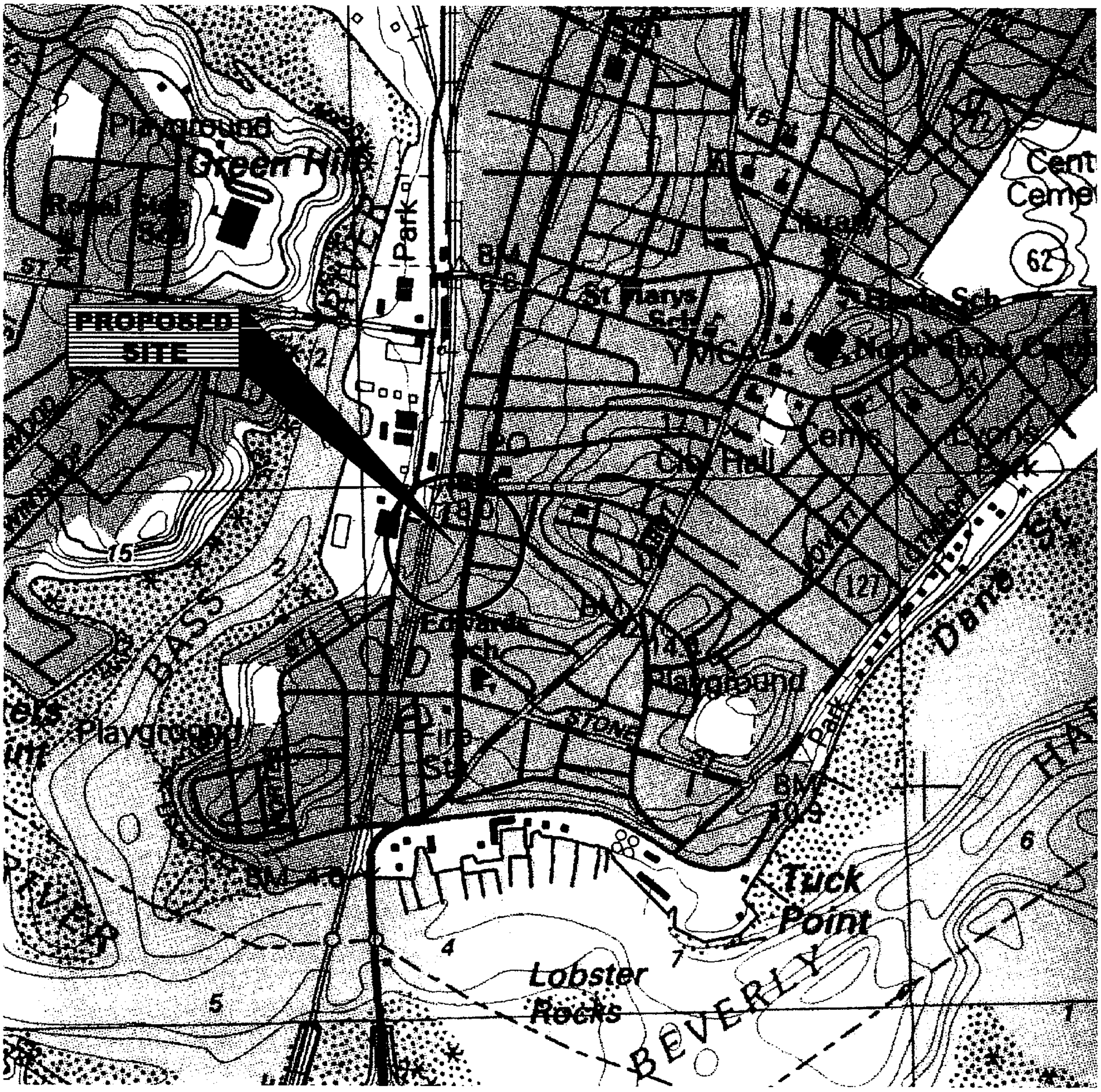
Impacts

Construction of a five-story parking garage will have no impact on the buildings on the site. Furthermore, the multi-story condominium structure will shield the proposed project from any visual impact to the Beverly Post Office. The use of sympathetic materials, scale and design in accordance with the Secretary of the Interior's standards will help mitigate any potential impacts on the warehouse at 60 Pleasant Street.

Sources

Massachusetts Historical Commission
MACRIS System
Sanborn Insurance Maps, 1886-1931
www.cummingscenter.com

N



LOCUS MAP

SCALE: 1" = 1000'

0' 1000' 2000'

SCALE: 1"=1000'

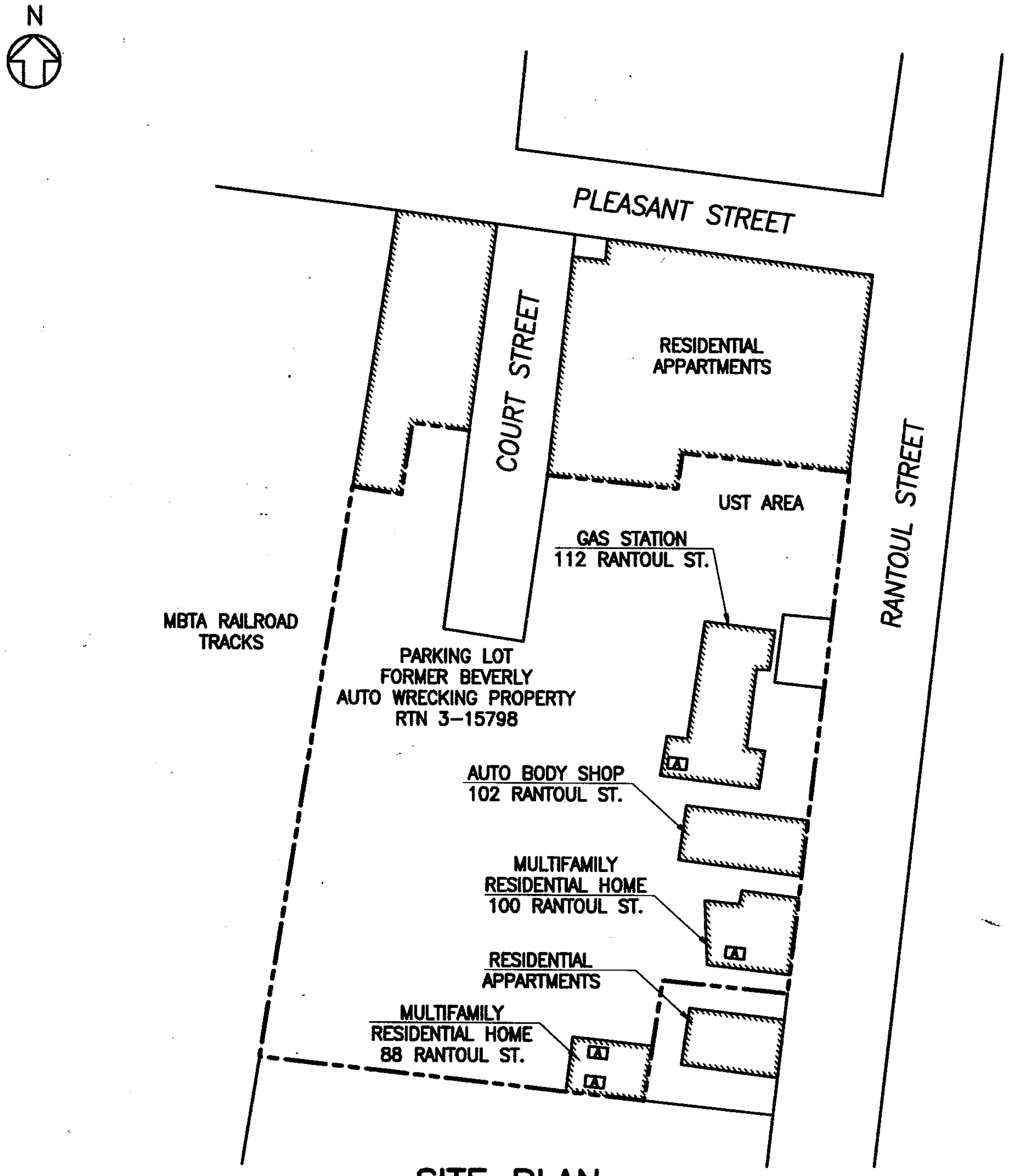
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

MBTA CONTRACT NO. W92PS03
PROPOSED BEVERLY COMMUTER RAIL PARKING
88, 100-102, 112 RANTOUL ST. & 60R PLEASANT ST.

Shaw Shaw Environmental, Inc.

LOCUS MAP

FIG. 1



SITE PLAN

SCALE: 1" = 80'

0' 80' 160'

SCALE: 1"=80'

LEGEND:

---- PROPERTY LINE

A ABOVE GROUND STORAGE

UST UNDERGROUND STORAGE TANKS

Shaw Environmental, Inc.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

MBTA CONTRACT NO. W92PS03
PROPOSED BEVERLY COMMUTER RAIL PARKING
88, 100-102, 112 RANTOUL ST. & 60R PLEASANT ST.

SITE PLAN

FIG. 2

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

April 21, 2009

Richard H. Doyle
Regional Administrator
Federal Transportation Authority
Volpe Center
55 Broadway, Suite 920
Cambridge, MA 02142

RE: MBTA Commuter Rail Parking Facility, 88, 100-102, 112 Rantoul Street & 60R Pleasant Street, Beverly, MA; MHC# 46085

Dear Mr. Doyle:

Thank you for your submission regarding the MBTA Commuter Rail Parking Facility in Beverly, received March 27, 2009.

After review of MHC files and the material submitted, I concur with your finding that the project will have no adverse effect (36 CFR 800.5(b)) on the project site and on the adjacent property, 60 Pleasant Street, which is eligible for listing on the National Register of Historic Places (36 CFR) provided the following conditions are met: MHC requests to review the design of the new parking facility when plans are complete.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800) and M.G.L. Chapter 9, Section 26-27C, (950 CMR 71.00). Please do not hesitate to contact Brandee Loughlin of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
Massachusetts Historical Commission

xc: Holly Palmgren, MBTA
Beverly Historical Commission

Traffic Study Report

MBTA Proposed Parking Garage

Beverly Depot Station

Beverly, Massachusetts

Prepared by

C&C Consulting Engineers, LLC

Boston, MA

January 2011

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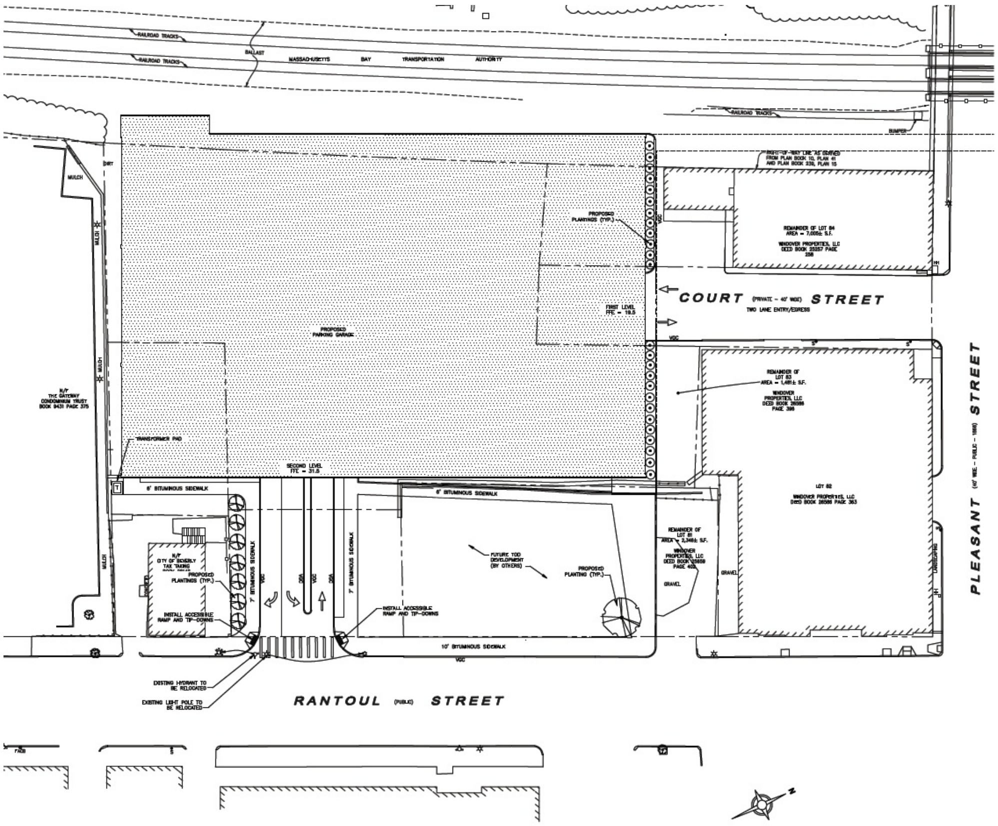
1.0 Introduction

1.1 Project Background

Beverly Depot Station has been identified by the MBTA as a prime location to serve increased commuter demand for public transportation, partly because it is the third busiest suburban commuter rail station in Massachusetts. However, a major limiting factor to improved commuter service is parking availability for existing and future commuter parking demand. The station is currently served by MBTA on-street parking, MBTA surface parking lot at the proposed parking garage project site and a private lot owned by the Beverly Depot Restaurant.

The MBTA has proposed a four (4) level, 486 car commuter parking garage as shown by Figure 1 to meet additional commuter parking demand.

Figure 1 – Proposed MBTA Commuter Parking Garage Location



RAILROAD TRACKS
RAILROAD TRACKS
BALLAST
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
RAILROAD TRACKS
BUMPER
RIGHT-OF-WAY LINE AS DERIVED FROM PLAN BOOK 10, PLAN 41 AND PLAN BOOK 230, PLAN 15
DIRT
MULCH
PROPOSED PLANTINGS (TYP.)
REMAINDER OF LOT 84 AREA = 7,005± S.F.
WINDOVER PROPERTIES, LLC DEED BOOK 25257 PAGE 258
COURT (PRIVATE - 40' WIDE) STREET
TWO LANE ENTRY/EGRESS
FIRST LEVEL FFE = 19.5
PROPOSED PARKING GARAGE
VGC
N/F THE GATEWAY CONDOMINIUM TRUST BOOK 9431 PAGE 375
REMAINDER OF LOT 83 AREA = 1,481± S.F.
WINDOVER PROPERTIES, LLC DEED BOOK 26586 PAGE 398
PLEASANT (40' WIDE - PUBLIC - 1880) STREET
TRANSFORMER PAD
SECOND LEVEL FFE = 31.5
6' BITUMINOUS SIDEWALK
6' BITUMINOUS SIDEWALK
LOT 82 WINDOVER PROPERTIES, LLC DEED BOOK 26586 PAGE 363
N/F CITY OF BEVERLY TAX TAKING
PROPOSED PLANTINGS (TYP.)
7' BITUMINOUS SIDEWALK
7' BITUMINOUS SIDEWALK
FUTURE TOD DEVELOPMENT (BY OTHERS)
PROPOSED PLANTING (TYP.)
REMAINDER OF LOT 81 AREA = 2,346± S.F.
WINDOVER PROPERTIES, LLC DEED BOOK 25659 PAGE 402
GRAVEL
GRAVEL
LANDSCAPING
INSTALL ACCESSIBLE RAMP AND TIP-DOWNS
INSTALL ACCESSIBLE RAMP AND TIP-DOWNS
10' BITUMINOUS SIDEWALK
EXISTING HYDRANT TO BE RELOCATED
EXISTING LIGHT POLE TO BE RELOCATED
RANTOUL (PUBLIC) STREET
N

1.2 Report Objective

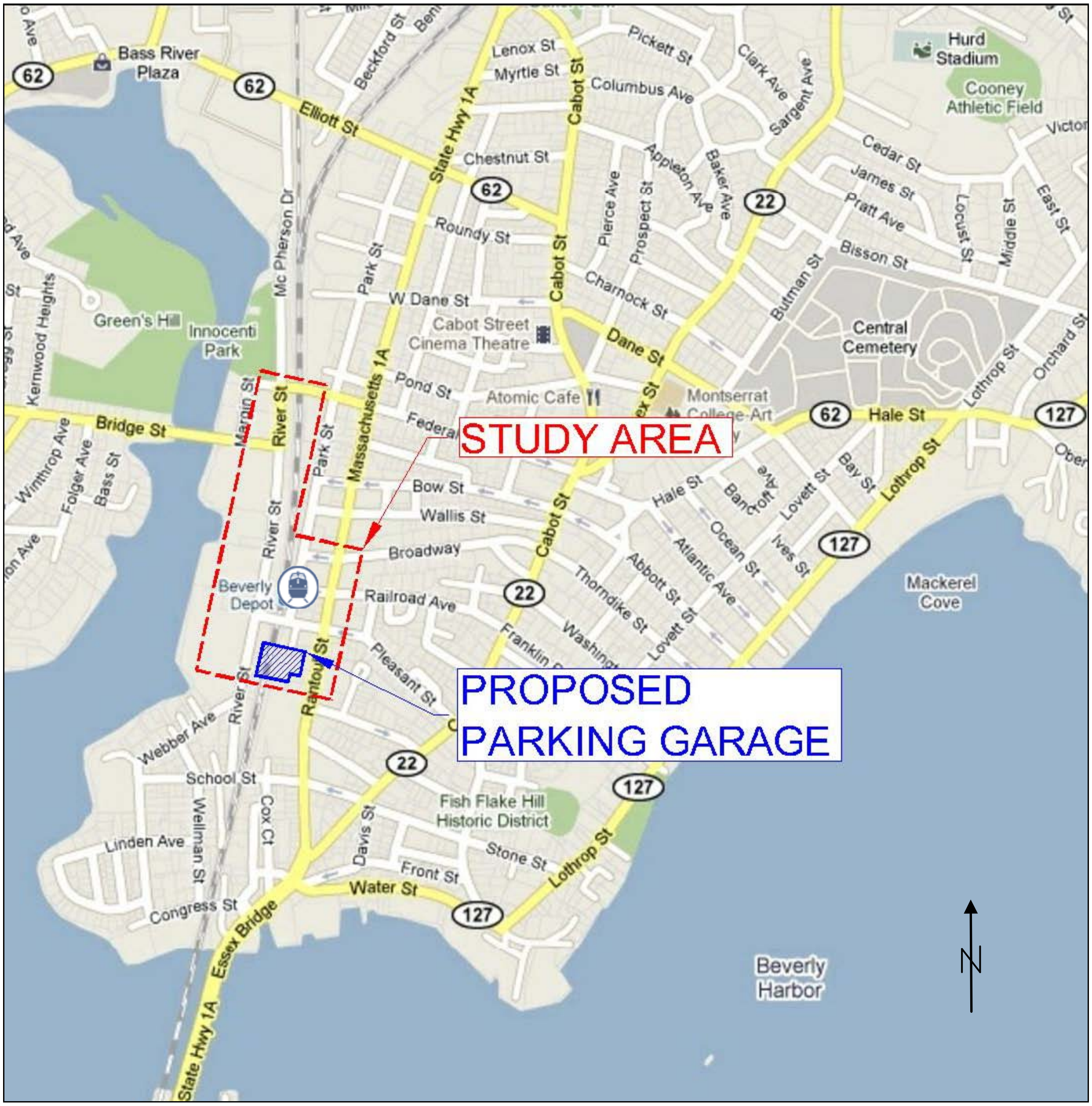
The objective of this report is to study the effects of the proposed garage on existing and future vehicular traffic within the study area. The traffic study will be a comparison between traffic conditions without the garage (No-Build) and traffic conditions if the parking garage is built (Build). These traffic conditions as well as safety for vehicles, pedestrians, and bicyclists will be evaluated for additional traffic resulting at the proposed garage location.

2.0 Existing Conditions

2.1 Study Area

The traffic study area outlined in Figure 2 consists of a section of Rantoul Street from Railroad Avenue to the proposed garage access, a section of Pleasant from Rantoul Street to River Street, and a section of River Street from Pleasant Street to Bridge Street.

Figure 2 – Study Area



The existing MBTA surface lot lcoated on Court Street provides an allocation for 100 vehicles for the Beverly Depot Station commuter passengers. An Additioanl 22 parking spaces are avaliable within close proximity to the MBTA Beverly Depot Station for MBTA Commuter passengers.

2.2 Roadways and Intersections

2.2.1 Roadways

- Rantoul Street (Route 1A) – Two-way traffic travels on Rantoul Street in a north/south direction. The posted speed limit for Rantoul Street is 25mph. Parallel parking is allowed on either side of Rantoul Street.
- Railroad Avenue – East of Rantoul Street is two-way with traffic traveling in an east/west direction. West of Rantoul Street is one-way traffic traveling east. The speed limit is not posted for Railroad Avenue. To the east of Rantoul Street, there is parallel parking on the north side of Railroad Avenue. To the west of Rantoul Street, there is perpendicular parking on either side of the street.
- Pleasant Street – East of Park Street, Pleasant Street is a one-way road traveling west between Rantoul Street and Court street. Pleasant Street is two-way from River Street to the Railroad Avenue intersection. There is no posted speed limit for Pleasant Street. Parallel parking is located along both sides on the one-way section of Pleasant Street.
- Court Street – Two-way traffic travels on Court Street in a north/south direction which also provides exclusive access to the existing MBTA surface parking lot. There is no posted speed limit and no on-street parking.
- Park Street – Two-way traffic travels on Park Street in a north/south direction. There is no posted speed limit. Parallel parking is provided between Pleasant Street and Railroad Avenue. Perpendicular parking is provided on opposite sides of the street at Beverly Depot Station.
- River Street –Two-way traffic travels on River Street in a north/south direction. Posted speed limit is 35mph with on-street parking on the west side of the street.
- Bridge Street – Two-way traffic travels on Bridge Street in an east/west direction. Posted speed limit is 30mph with no on-street parking within the study area.

2.2.2 Intersections

- Rantoul Street @ Railroad Avenue is currently an un-signalized intersection with Railroad Avenue controlled by strop signs at Rantoul Street. All four approaches to the intersection are single lanes.
- Rantoul Street @ Pleasant Street is an un-signalized intersection with the Pleasant Street westbound approach controlled by a stop sign and no stop controls for Rantoul Street. All three approaches are single lanes.
- Pleasant Street @Court Street @ Park Street is an offset un-signalized intersection with all approaches controlled by stop signs. All four approaches are single lanes.

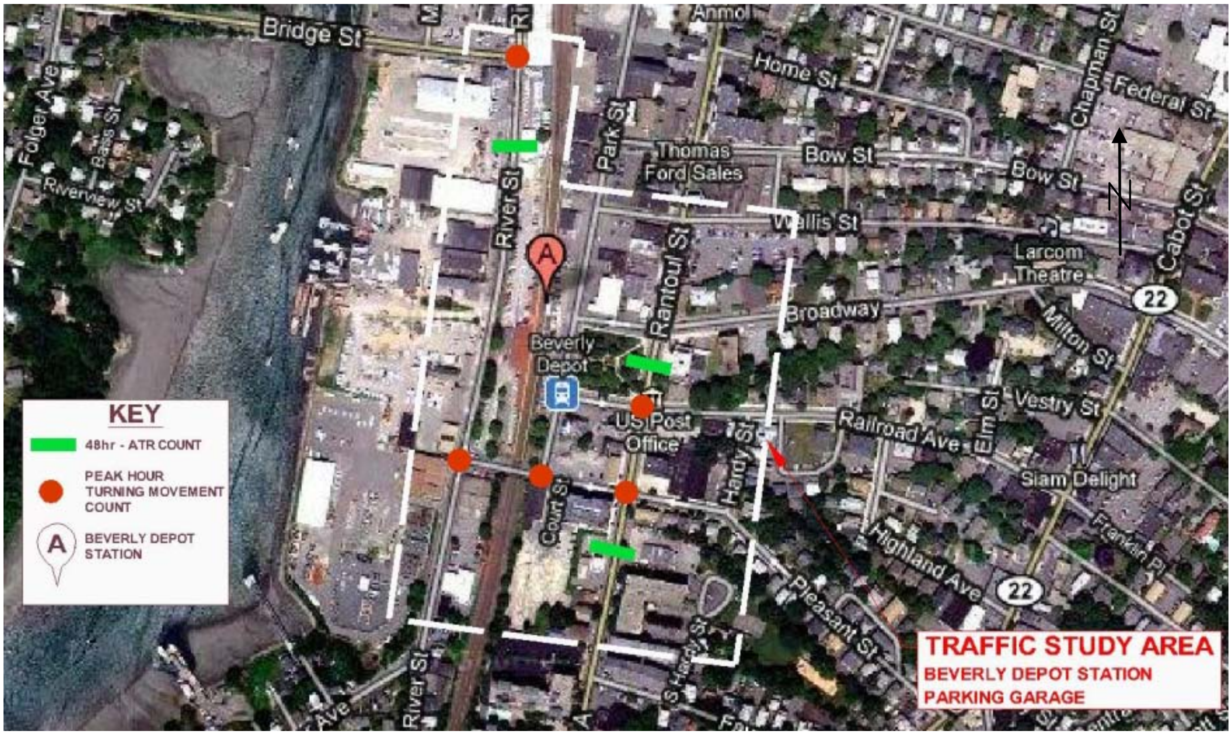
The eastbound right turn movement from Pleasant Street to Court Street is restricted based on the existing ‘DO NOT ENTER’ sign. Counts taken for this study have shown that vehicles make the restricted right turn, and thus this movement will be analyzed as if the turn is allowed.

- River Street @ Pleasant Street is an un-signalized T-intersection with the Pleasant Street westbound and River Street northbound approaches controlled by stop signs and no stop control for the River Street southbound approach. All three approaches were single lanes.
- River Street @ Bridge Street is an un-signalized T-intersection with the Bridge Street eastbound approach controlled by a stop sign and no stop control for the River Street approaches. The north and southbound approaches are single lanes and the eastbound approach has two approach lanes that start 63’ from the stop bar providing exclusive left and right turn lanes.

2.3 Traffic Count Data

Automatic traffic recorder (ATR) and intersection turning movement counts (TMC) were conducted to analyze existing and future traffic conditions within the study area. Traffic count locations are illustrated in Figure 3.

Figure 3- Traffic count locations



2.3.1 Automatic Traffic Recorder (ATR) Counts

ATR count data was recorded on 3 street locations in the study area. Counts were recorded for a 48 hour duration from Wednesday October 27th to Thursday October 28th 2010. ATR count locations were conducted on:

1. Rantoul Street north of Railroad Avenue
2. Rantoul Street south of Pleasant Street
3. River Street south of Bridge Street

2.3.2 Turning Movement Counts (TMC)

TMCs were conducted at 5 intersection locations in the study area on Thursday October 28th which included;

1. Rantoul Street @ Railroad Avenue
2. Rantoul Street @ Pleasant Street
3. Pleasant Street @Court Street and Park Street
4. River Street @ Pleasant Street
5. River Street @ Bridge Street

TMCs were recorded for 3 hour duration from 6am until 9am during the morning and between 4pm and 7pm during the afternoon.

2.3.3 Pedestrian and Bicyclists

Pedestrians and bicyclists were also recorded while TMC's were being conducted at each intersection location.

3.0 Future Conditions

3.1 Intersections

- Rantoul Street @ Railroad Avenue - Rantoul Street @ Railroad Avenue is being programmed for a new traffic signal by the Massachusetts Department of Transportation (MassDOT). This new signal is expected to be operational after the proposed garage is built in year 2012. Year 2022 traffic analysis includes this signal to be operational as a fully actuated signal.
- Rantoul Street @ the Garage Entrance/Exit is a T-intersection that will be built for the proposed MBTA garage. The garage exit will be controlled by a stop sign, Rantoul Street will not be stop controlled. The exit will have two lanes; one dedicated left and one dedicated right turn lane, as well as one entrance lane.

3.2 Traffic Growth Rate

An average annual traffic growth rate is assumed to increase at 1% per year for future traffic conditions. Existing 2010 traffic counts were projected using 1% annual traffic growth rate to 2012 based upon the proposed garage completion and operation in Year 2012. Future Year 2022 traffic conditions were analyzed for 10 year duration after completion of the garage with the average annual traffic growth rate.

3.3 Additional Parking Garage Traffic

Additional traffic will be generated within the Study Area by the proposed MBTA commuter parking garage. All garage parking is assumed to be occupied by MBTA commuters requiring train service at Beverly Depot Station and all available parking garage space will be occupied by MBTA commuters during Monday thru Friday morning and evening periods.

Currently the MBTA provides100 paid parking spaces in the existing surface lot which will become level 1 of the proposed garage. The proposed 4 level garage provides a total of 486 spaces for MBTA commuter parking. Assuming the parking garage is completely full with commuters during the morning and evening periods when existing traffic was recorded, the proposed garage will conservatively generate 386 additional commuter trips entering the garage during the AM peak hours and 386 trips leaving the garage during the PM peak hours.

3.4 Generated Traffic Distribution

Additional parking garage traffic was distributed on study area roadways and intersections based upon recorded traffic data collection patterns entering and exiting the existing MBTA surface parking lot, regional population distributions, and locations of other MBTA commuter rail stations along the Haverhill and Rockport-Gloucester MBTA Commuter Rail service Corridors.

Figure 5 shows the distribution of the generated AM Peak Hour Traffic entering the garage. Figure 6 shows the distribution of the generated PM Peak Hour Traffic leaving the garage

Figure 4 – Morning (6-9 AM) Traffic Entering Garage Distribution

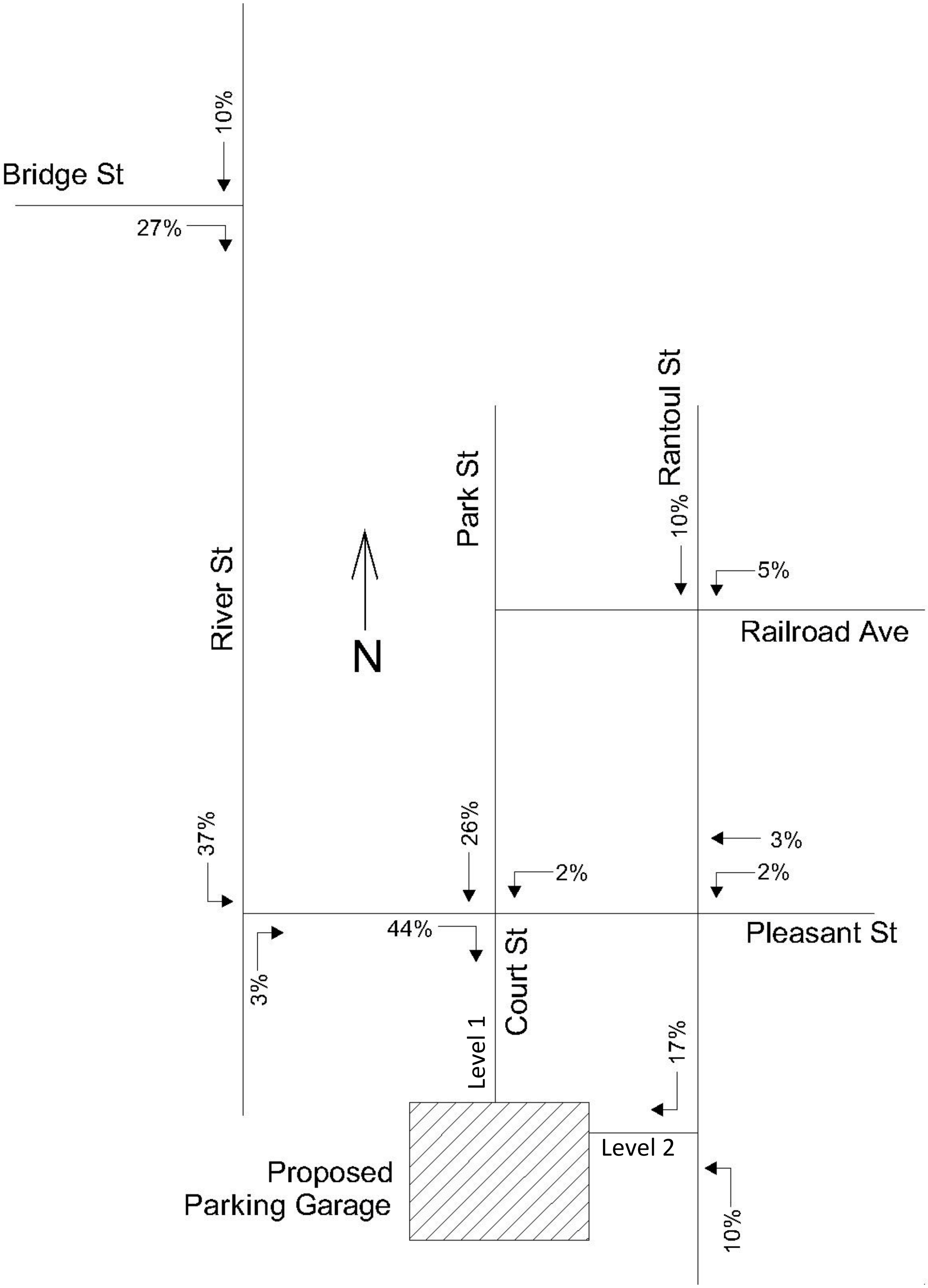
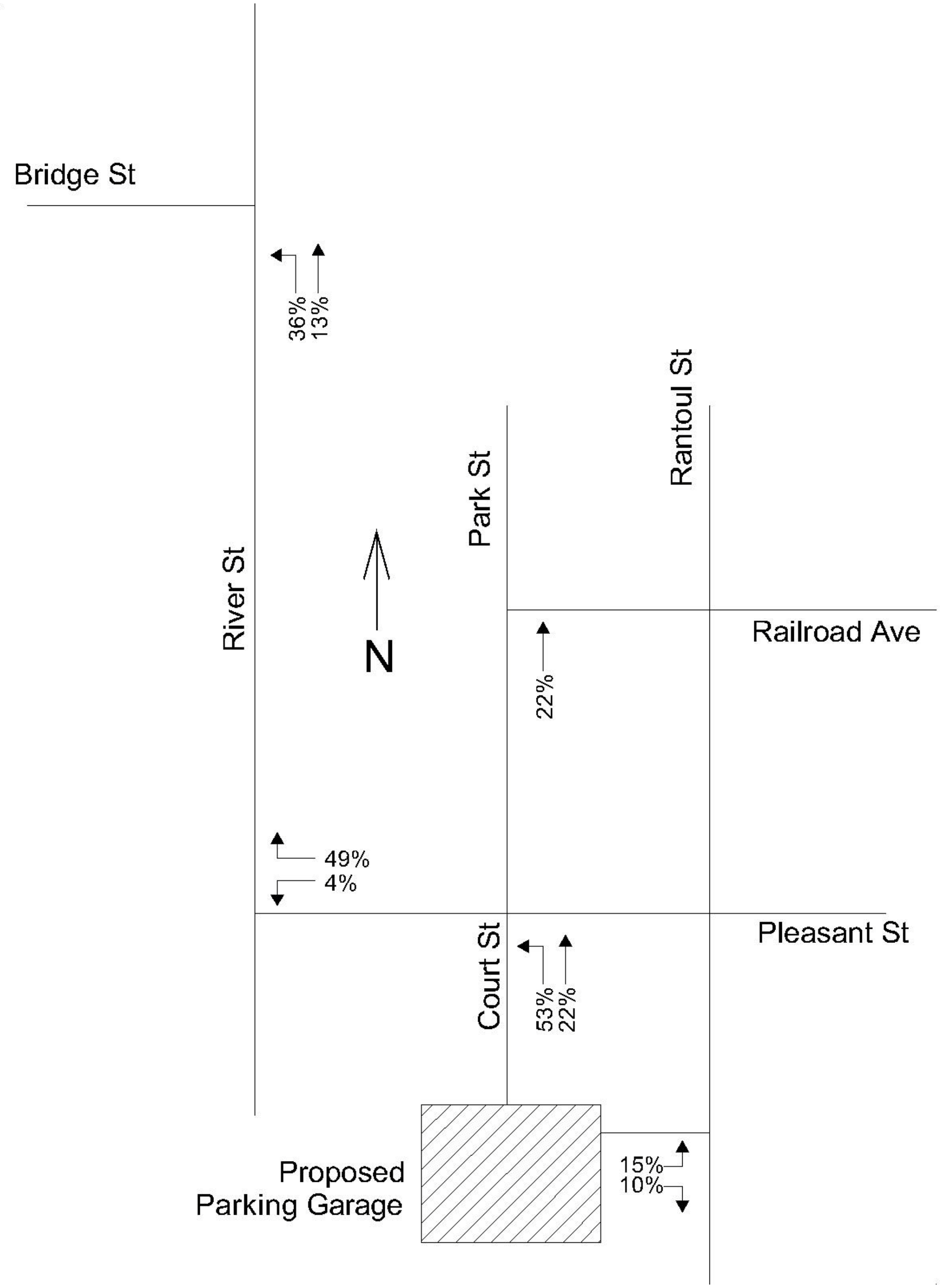


Figure 5 – Evening (4-7 PM) Exiting Garage Traffic Distribution



Using the distribution factors the 386 trips per peak were distributed across the study which can be seen in Figures 7 and 6.

Figure 6 – Additional Generated AM Peak Hour Traffic (8 AM to 9 AM)

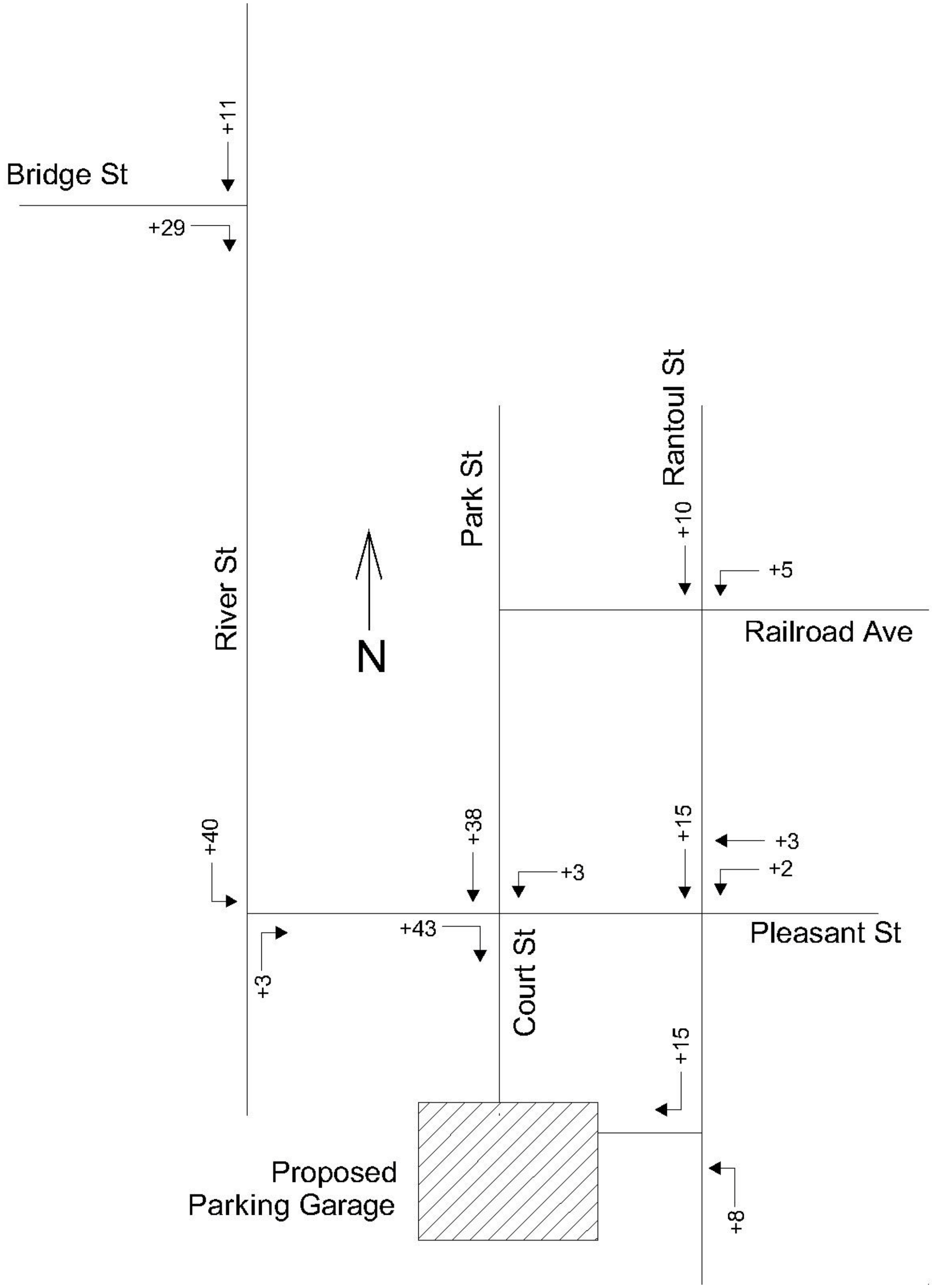
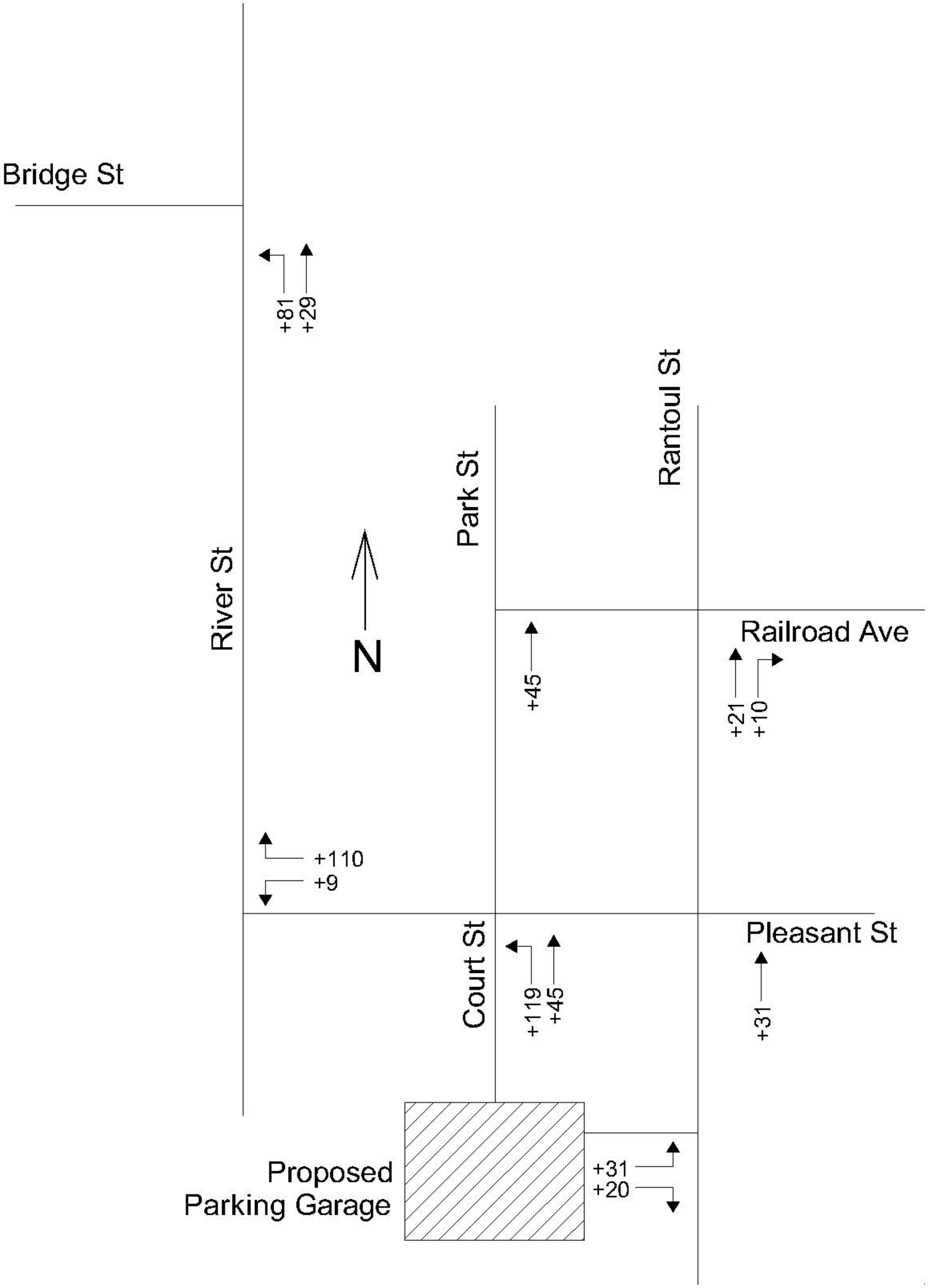


Figure 7 – Additional Generated PM Peak Hour Traffic (5:30 PM to 6:30 PM)



4.0 Methodology & Approach

4.1 Vehicular Traffic

Existing traffic models were developed from field visits, traffic counts, and the proposed garage plans. Five intersection locations determined to be most affected by the generated traffic from the parking garage were studied. These intersections were:

1. Rantoul Street @ Railroad Avenue
2. Rantoul Street @ Pleasant Street
3. Pleasant Street @ Park Street & Court Street
4. River Street @ Pleasant Street
5. River Street @ Bridge Street
6. Rantoul Street @ Garage Exit/Entrance

Each intersection was evaluated based on level of service, delay, volume/capacity ratio (v/c ratio), and safety.

There are two types of peak traffic conditions within the study area, the normal street traffic within the study area and the traffic entering and exiting the garage. The study was evaluated for the AM and PM peak hours of the street traffic. The AM and PM peak hour conditions occur between 8am-9am and 5:30pm-6:30pm respectively.

Each intersection was analyzed using Synchrony 7 for year 2012 and year 2022 without the garage (No-Build) and with the garage (Build).

4.1.1 Signal Warrants

Each intersection was analyzed if the intersection warranted a traffic signal based on both the No-Build and Build traffic conditions. Traffic control signals are not warranted unless they meet at least one of the 9 warrants listed in the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD warrants are listed below.

- Warrant 1. Eight-Hour Vehicular Volume
- Warrant 2. Four-Hour Vehicular Volume
- Warrant 3. Peak Hour
- Warrant 4. Pedestrian Volume
- Warrant 5. School Crossing
- Warrant 6. Coordinated Signal System
- Warrant 7. Crash Experience
- Warrant 8. Roadway Network
- Warrant 9. Intersection Near a Grade Crossing

Warrant 2 was used to analyze the intersections, and can be found in Appendix D.

4.1.2 Intersection Level of Service

The Highway Capacity Manual (HCM) does not define overall intersection Level of Service (LOS) for unsignalized intersections that are not stop-controlled on all approaches. In this case, such as two-way stop-controlled intersection, LOS is defined separately for each approach. Therefore, overall intersection LOS is not defined for unsignalized intersections. For these intersections, Sychro reports average delays for both individual approaches and the entire intersection. However, it only reports LOS for each approach not the entire intersection. In the following tables, the average intersection delay is reported with the corresponding LOS from HCM Exhibit 17-2 for means of comparison with the other two columns. HCM Exhibit 17-2 is the LOS criteria for 2-way stop-controlled intersections, see below. It also applies to all-way stop-controlled intersections. It is intended to be used for each individual approach, but in this case we are applying it to the overall average intersection delay and using it as a means of comparison. See Table 3 for the criteria for unsignalized intersections.

Table 1 – Unsignalized Intersection Level of Service

Level of Service	Average Control Delay (s/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

It is also important to note that the LOS delay criteria for stop-controlled intersections "have different threshold values than do those for signalized intersections primarily because drivers expect different levels of performance from distinct types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an all-way stop controlled intersection. Thus a higher level of control delay is acceptable at a signalized intersection for the same LOS." (HCM p. 17-32). For example, an average delay of 60 seconds would result in an LOS of F at a stop-controlled intersection, but an LOS of E at a signalized intersection. See Table 4 for LOS criteria of signalized intersections

Table 2 –Signalized Intersection Level of Service

Level of Service	Average Control Delay (s/veh)
A	0-10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Synchro 7 reports, as well as a tabulated report on the recorded Levels of Service can be found in Appendix E.

4.1.3 V/C Ratio & Queues

Vehicle queuing is an important measure of performance in considering the geometry of the intersection and approaches. Intersections can function at reasonable delays while the queues exceed available storage space designated for that movement. When volume-to-capacity (v/c) ratios for each turning movement exceed 1.0, queues generally become excessive.

4.2 Pedestrian and Bicyclists

Neither the pedestrian nor the bicyclist traffic will have a significant effect on the congestion. Accordingly, analysis of pedestrians and bicyclists will be referenced only when a direct affect occurs on vehicular traffic flow. The specific accommodations will be discussed in greater detail in the following section.

5.0 Conclusions and Recommendations

The following is a tabular analysis of the intersections for the AM and PM peak hours for the Build and No-build conditions.

Table 3 –Measures of Effectiveness

	AM PEAK HOUR (8 AM to 9 AM)							
	2012 No-Build				2012-Build			
Intersection	LOS	Delay (s)	V/C	Queue (ft)	LOS	Delay	V/C	Queue
Rantoul Street @ Railroad Avenue	A	8	0.69	118	A	8.3	0.7	121
Rantoul Street @ Pleasant Street	A	2.5	0.29	20	A	2.6	0.29	23
Pleasant Street@ Court/Park Street	A	8.4	0.22	-	A	8.8	0.28	-

Pleasant Street @ River Street	B				B			
River Street @ Bridge Street	B	14.3	0.85	147	B	15.1	0.86	151
	PM PEAK HOUR (5:30 PM to 6:30 PM)							
	2012 No-Build				2012-Build			
Intersection	LOS	Delay	V/C	Queue	LOS	Delay	V/C	Queue
Rantoul Street @ Railroad Avenue	F	64.7	1.52	493	F	70.4	1.59	516
Rantoul Street @ Pleasant Street	A	1.7	0.44	16	A	1.7	0.44	17
Pleasant Street@ Court/Park Street	A	8.7	0.28	-	A	9.9	0.32	-
Pleasant Street @ River Street	B				C			
River Street @ Bridge Street	E	36.6	1.43	274	F	67.5	2.24	362
Rantoul Street @ Garage Entrance					D	1.0	0.43	16
	AM PEAK HOUR (8 AM to 9 AM)							
	2022 No-Build				2022-Build			
Intersection	LOS	Delay	V/C	Queue	LOS	Delay	V/C	Queue
Rantoul Street @ Railroad Avenue	A	9.7	0.59	136	A	9.6	0.59	136
Rantoul Street @ Pleasant Street	AA	3.1	0.32	31	A	3.4	0.37	38
Pleasant Street@ Court/Park Street	A	8.6	0.25	-	A	9.1	0.31	-
Pleasant Street @ River Street	C				C			
River Street @ Bridge Street	C	24.7	1.15	228	D	26.0	1.17	223
	PM PEAK HOUR (5:30 PM to 6:30 PM)							
	2022 No-Build				2022-Build			
Intersection	LOS	Delay	V/C	Queue	LOS	Delay	V/C	Queue
Rantoul Street @ Railroad Avenue	B	18.1	0.82	334	B	19.4	0.84	410
Rantoul Street @ Pleasant Street	A	2.7	0.49	37	A	2.8	0.49	41

Pleasant Street@ Court/Park Street	A	9.1	0.32	9.8	B	10.5	0.36	-
Pleasant Street @ River Street	D				D			
River Street @ Bridge Street	F	68.1	2.13	381	F	851.9	3.43	-
Rantoul Street @ Garage Entrance					E	1.3	0.48	27

5.1 Rantoul Street @ Railroad Avenue Intersection

Rantoul Street @ Railroad Avenue experiences no significant reduction in existing level of service with additional traffic from the proposed MBTA parking garage (Build). Future Rantoul Street (Route 1A) reconstruction improvements will include a new traffic signal at this intersection. This will improve overall intersection vehicular level of service and pedestrian safety conditions for the MBTA proposed garage build or no-build conditions.

Rantoul Street @ Railroad Avenue recorded the highest number of vehicular traffic accidents. Seventy-four percent (74%) of total crashes occurred during dry conditions. Eighty percent (80%) of the crashes involved property damage and one (1) fatality was reported. Signalization will reduce the angle conflict point, and thus should mitigate the amount of angle crashes at the intersection. There were two crashes at the intersection that involved a cyclist. The signal should reduce the most common accident type (angles) and will also provide pedestrians walking to the station a dedicated phase to safely cross Rantoul Street and continue to Beverly Depot Train Station.

5.2 Rantoul Street @ Pleasant Street

Rantoul Street @ Pleasant Street shows no significant reduction in performance with the generated traffic from the proposed garage. The intersection performed at a good LOS with low queues and low accident rates.

5.3 Pleasant Street @ Park Street @ Court Street

The existing intersection of Pleasant @ Park @ Court Streets experiences a negligible effect to existing Level of Service due to additional traffic generated by the proposed garage (Build).

Improvement considerations by the City of Beverly for this intersection include striping, signing, and pedestrian improvements. Current the intersection restricts vehicles from making the eastbound right turn on Pleasant Street onto Court Street, even though the counts show that vehicles make this movement with regularity. The recommendation is to allow this movement legally by striping eastbound Pleasant as two lanes, one right turn only and one left turn only. The ‘DO NOT ENTER’ sign should be pulled back so that it is east of Court Street. In addition, a bulb-out is recommended on the south side of the westbound approach to channelize westbound traffic to the right side of the road, and to provide a physical deterrent from vehicles traveling eastbound from going thru the intersection into a one-way road.

Pedestrian improvements could also be addressed at this intersection. With the additional parking provided by the garage, there will be more pedestrians walking to the station, and thus the intersection should be upgraded to ADA standards. Improvements should include ADA curb cuts and wheel chair ramps as well as striped crosswalks. Bulb outs across Park Street would the length of traffic that pedestrians would have to cross, thus improve pedestrian travel safety.

5.4 River Street @ Pleasant Street

The additional traffic generated from the garage will not significantly reduce the intersection performance of River Street @ Pleasant Street. Even though the generated traffic numbers are significant, the existing traffic control will allow this additional traffic to flow efficiently within the existing geometry.

5.5 River Street @ Bridge Street

River Street @ Bridge Street showed decreased efficiency due to the increased traffic generated by the garage. The majority of the River Street @ Bridge Street crashes occurred during dry conditions (84%) and was spread evenly across the week. Of the crashes at this intersection 90% of them involved property damage only. There was one crash involving a pedestrian.

The intersection met the MUTCD traffic control sign warrant, Warrant 2 traffic volumes for the No-Build 2010 counts. Signalization of this intersection would improve the safety and performance of the intersection, but it is noted that the intersection warranted a signal before the MBTA garage traffic was added into the traffic volumes.

The areas to the north and east of the Station were shown to be the largest areas of traffic generated by the Garage, thus this intersection has the greatest effects. With north and southbound traffic free, the eastbound movement on Bridge Street was the least effective movement at the intersection. The eastbound movement showed significant queues especially in the PM Peak Hour, with excessive delays, and a V/C ratio of 3.43.

5.6 Rantoul Street @ Garage Exit/Entrance

The garage exit/entrance showed no significant traffic deficiencies. Due to the low volume of vehicles entering the garage from the south, the left turn movement into the garage did not show any problems blocking northbound traffic while vehicles waited for a gap in southbound traffic.

It is recommended that approximately four parking spaces on the west side of Rantoul Street be removed within the sight triangle of exiting vehicles. Providing exiting vehicles with the proper sight distance will improve safety for this driveway.

Appendix A

Recorded Traffic Summary Counts

Accurate Counts
978-664-2565

N/S Street : Rantoul Street	File Name : 14850001
E/W Street: Railroad Avenue	Site Code : 14850001
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

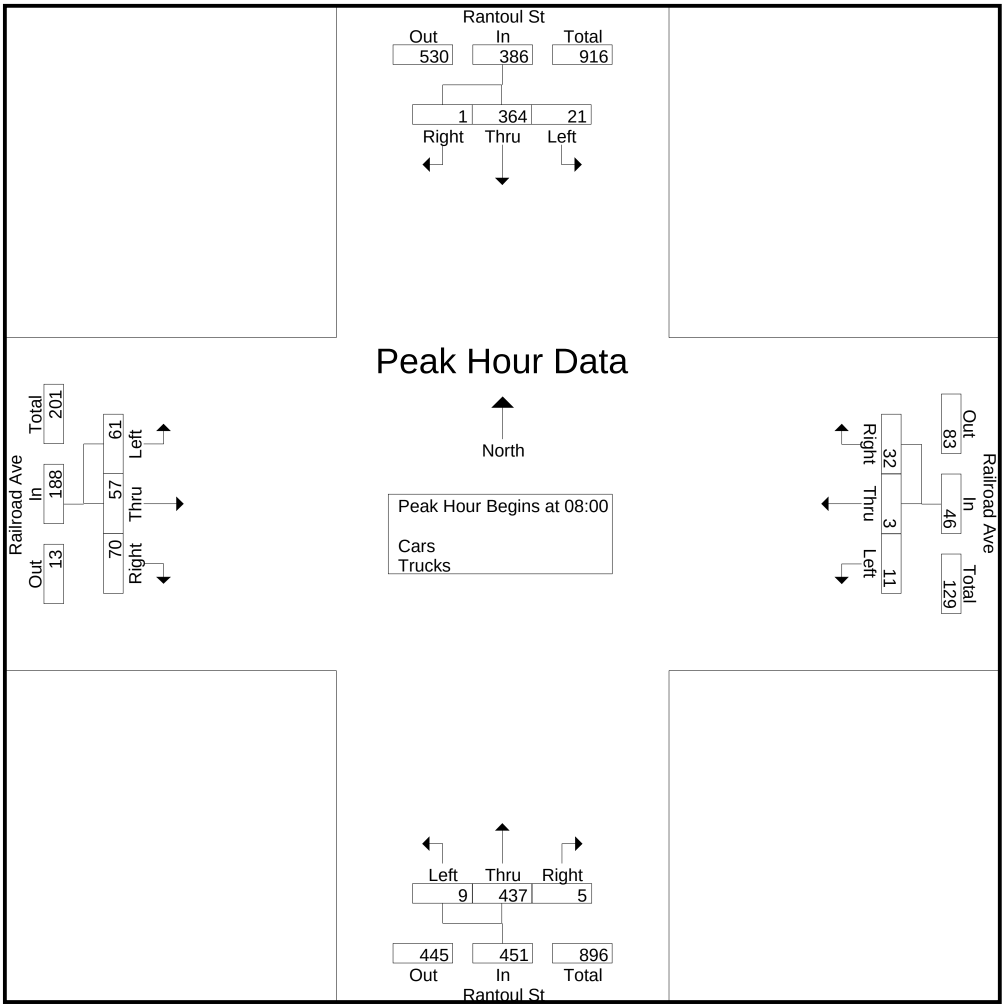
Groups Printed- Cars - Trucks

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	36	0	1	1	0	4	2	1	47	0	0	5	2	1	0	3	97	100
06:15	0	33	0	4	9	0	6	0	0	40	0	1	4	3	7	1	6	102	108
06:30	2	44	1	3	5	2	3	0	0	63	2	0	1	4	3	4	7	130	137
06:45	1	58	0	0	4	0	5	0	1	80	3	0	4	2	6	3	3	164	167
Total	3	171	1	8	19	2	18	2	2	230	5	1	14	11	17	8	19	493	512
07:00	10	80	0	6	0	0	6	2	0	63	3	1	11	6	9	3	12	188	200
07:15	3	82	0	8	7	0	7	3	0	77	0	4	12	4	13	3	18	205	223
07:30	3	88	1	11	13	2	8	4	1	102	3	0	13	10	8	1	16	252	268
07:45	4	83	0	11	3	0	12	4	0	112	2	2	26	24	10	0	17	276	293
Total	20	333	1	36	23	2	33	13	1	354	8	7	62	44	40	7	63	921	984
08:00	8	75	0	4	4	0	9	3	0	92	1	1	24	14	14	4	12	241	253
08:15	4	98	1	2	4	2	12	1	5	103	2	0	14	21	22	1	4	288	292
08:30	4	90	0	1	1	0	4	1	3	97	0	1	10	19	14	0	3	242	245
08:45	5	101	0	2	2	1	7	2	1	145	2	0	13	3	20	1	5	300	305
Total	21	364	1	9	11	3	32	7	9	437	5	2	61	57	70	6	24	1071	1095
Grand Total	44	868	3	53	53	7	83	22	12	1021	18	10	137	112	127	21	106	2485	2591
Apprch %	4.8	94.9	0.3		37.1	4.9	58		1.1	97.1	1.7		36.4	29.8	33.8				
Total %	1.8	34.9	0.1		2.1	0.3	3.3		0.5	41.1	0.7		5.5	4.5	5.1		4.1	95.9	
Cars	42	840	3		53	7	83		12	994	18		129	106	123		0	0	2516
% Cars	95.5	96.8	100	100	100	100	100	100	100	97.4	100	100	94.2	94.6	96.9	100	0	0	97.1
Trucks	2	28	0		0	0	0		0	27	0		8	6	4		0	0	75
% Trucks	4.5	3.2	0	0	0	0	0	0	0	2.6	0	0	5.8	5.4	3.1	0	0	0	2.9

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**8**				**4**								**24**				
08:15	4	98	**1**	103	4	**2**	**12**	**18**	**5**	103	**2**	110	14	**21**	**22**	**57**	288
08:30	4	90	0	94	1	0	4	5	3	97	0	100	10	19	14	43	242
08:45	5	**101**	0	**106**	2	1	7	10	1	**145**	2	**148**	13	3	20	36	**300**
Total Volume	21	364	1	386	11	3	32	46	9	437	5	451	61	57	70	188	1071
% App. Total	5.4	94.3	0.3		23.9	6.5	69.6		2	96.9	1.1		32.4	30.3	37.2		
PHF	.656	.901	.250	.910	.688	.375	.667	.639	.450	.753	.625	.762	.635	.679	.795	.825	.893

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00				07:30				08:00				07:45			
+0 mins.	**8**	75	0	83	**13**	**2**	8	**23**	0	92	1	93	**26**	**24**	10	**60**
+15 mins.	4	98	**1**	103	3	0	**12**	15	**5**	103	**2**	110	24	14	14	52
+30 mins.	4	90	0	94	4	0	9	13	3	97	0	100	14	21	**22**	57
+45 mins.	5	**101**	0	**106**	4	2	12	18	1	**145**	2	**148**	10	19	14	43
Total Volume	21	364	1	386	24	4	41	69	9	437	5	451	74	78	60	212
% App. Total	5.4	94.3	0.3		34.8	5.8	59.4		2	96.9	1.1		34.9	36.8	28.3	
PHF	.656	.901	.250	.910	.462	.500	.854	.750	.450	.753	.625	.762	.712	.813	.682	.883

N/S Street : Rantoul Street
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File Name : 14850001
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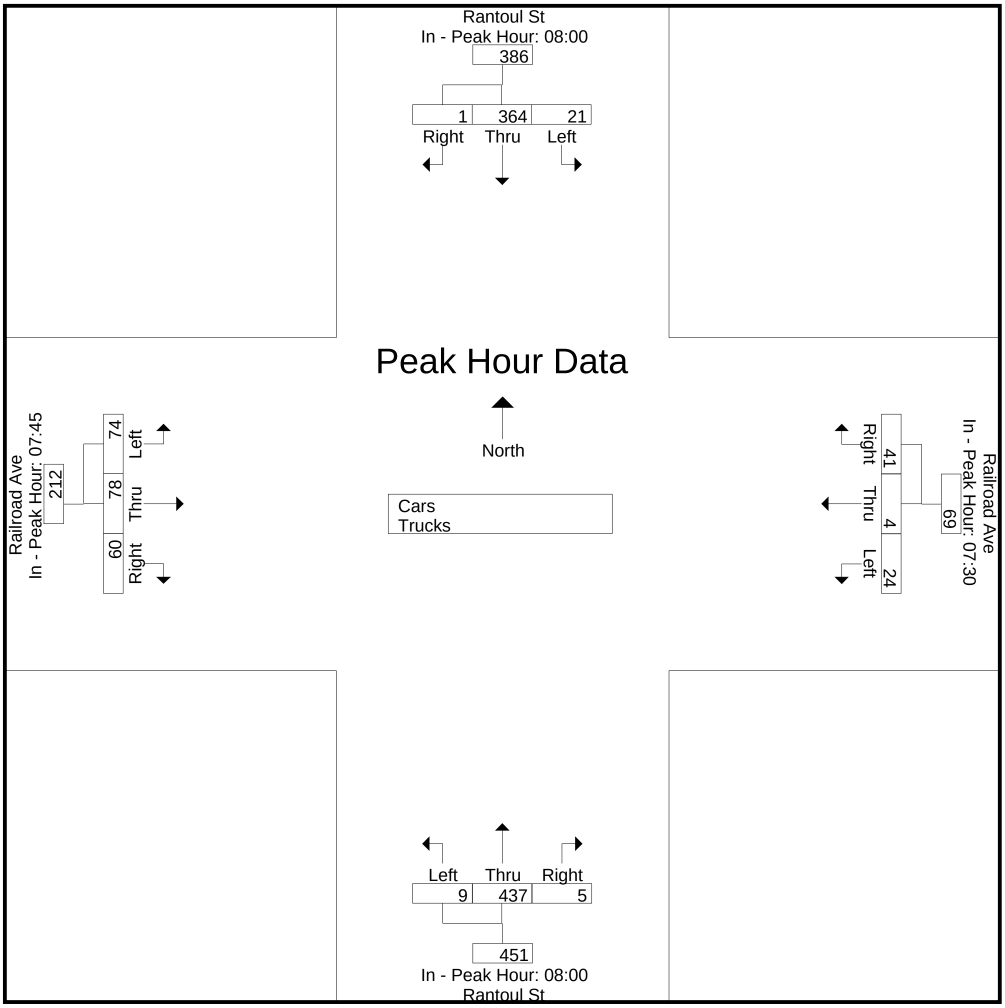

Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	36	0	1	1	0	4	2	1	46	0	0	5	2	1	0	3	96	99
06:15	0	33	0	4	9	0	6	0	0	40	0	1	4	3	7	1	6	102	108
06:30	2	42	1	3	5	2	3	0	0	61	2	0	1	4	3	4	7	126	133
06:45	1	55	0	0	4	0	5	0	1	78	3	0	4	2	6	3	3	159	162
Total	3	166	1	8	19	2	18	2	2	225	5	1	14	11	17	8	19	483	502
07:00	10	79	0	6	0	0	6	2	0	59	3	1	10	6	8	3	12	181	193
07:15	3	76	0	8	7	0	7	3	0	73	0	4	12	4	12	3	18	194	212
07:30	2	87	1	11	13	2	8	4	1	101	3	0	12	9	7	1	16	246	262
07:45	4	80	0	11	3	0	12	4	0	107	2	2	25	22	10	0	17	265	282
Total	19	322	1	36	23	2	33	13	1	340	8	7	59	41	37	7	63	886	949
08:00	8	74	0	4	4	0	9	3	0	92	1	1	21	12	14	4	12	235	247
08:15	4	93	1	2	4	2	12	1	5	101	2	0	13	20	21	1	4	278	282
08:30	3	86	0	1	1	0	4	1	3	95	0	1	9	19	14	0	3	234	237
08:45	5	99	0	2	2	1	7	2	1	141	2	0	13	3	20	1	5	294	299
Total	20	352	1	9	11	3	32	7	9	429	5	2	56	54	69	6	24	1041	1065
Grand Total	42	840	3	53	53	7	83	22	12	994	18	10	129	106	123	21	106	2410	2516
Apprch %	4.7	94.9	0.3		37.1	4.9	58		1.2	97.1	1.8		36	29.6	34.4				
Total %	1.7	34.9	0.1		2.2	0.3	3.4		0.5	41.2	0.7		5.4	4.4	5.1		4.2	95.8	

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**8**				**4**								**21**				
08:15	4	93	**1**	98	4	**2**	**12**	**18**	**5**	101	**2**	108	13	**20**	**21**	**54**	278
08:30	3	86	0	89	1	0	4	5	3	95	0	98	9	19	14	42	234
08:45	5	**99**	0	**104**	2	1	7	10	1	**141**	2	**144**	13	3	20	36	**294**
Total Volume	20	352	1	373	11	3	32	46	9	429	5	443	56	54	69	179	1041
% App. Total	5.4	94.4	0.3		23.9	6.5	69.6		2	96.8	1.1		31.3	30.2	38.5		
PHF	.625	.889	.250	.897	.688	.375	.667	.639	.450	.761	.625	.769	.667	.675	.821	.829	.885

N/S Street : Rantoul Street
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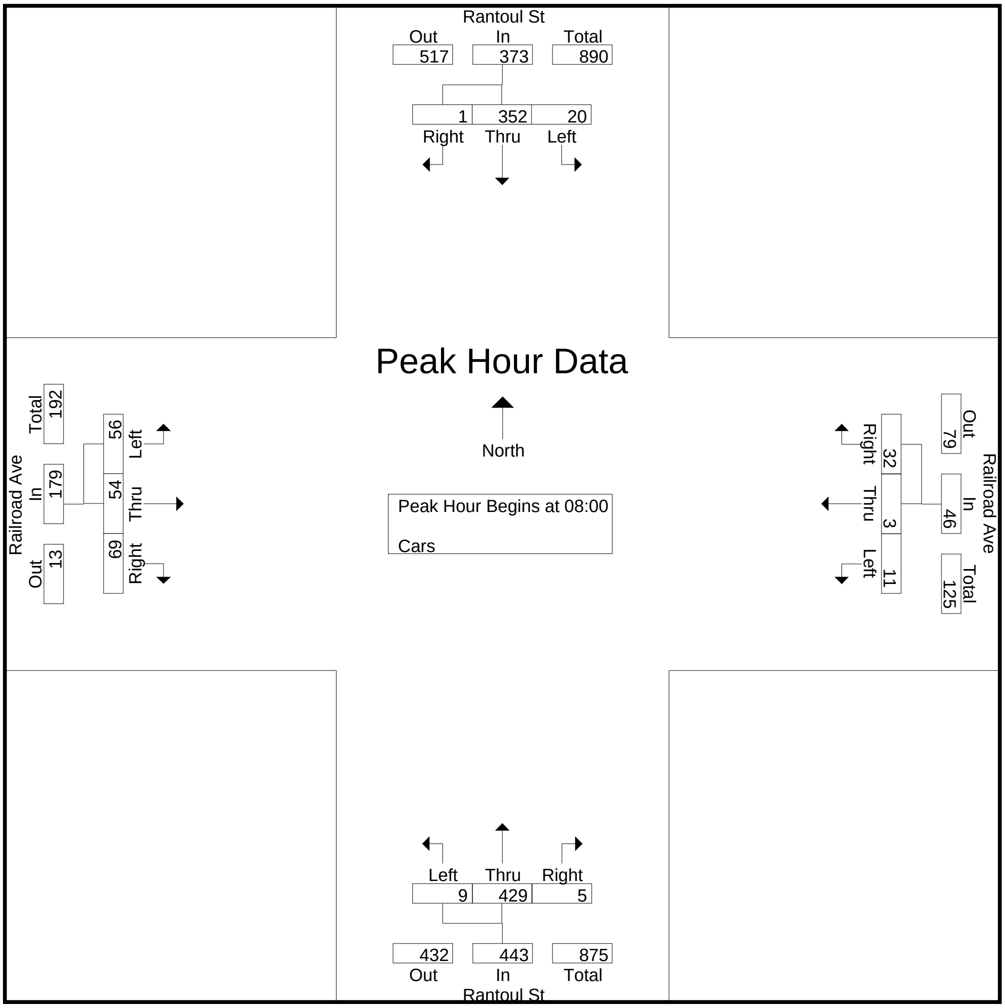
File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00				07:30				08:00				07:45			
+0 mins.	**8**	74	0	82	**13**	**2**	8	**23**	0	92	1	93	**25**	**22**	10	**57**
+15 mins.	4	93	**1**	98	3	0	**12**	15	**5**	101	**2**	108	21	12	14	47
+30 mins.	3	86	0	89	4	0	9	13	3	95	0	98	13	20	**21**	54
+45 mins.	5	**99**	0	**104**	4	2	12	18	1	**141**	2	**144**	9	19	14	42
Total Volume	20	352	1	373	24	4	41	69	9	429	5	443	68	73	59	200
% App. Total	5.4	94.4	0.3		34.8	5.8	59.4		2	96.8	1.1		34	36.5	29.5	
PHF	.625	.889	.250	.897	.462	.500	.854	.750	.450	.761	.625	.769	.680	.830	.702	.877

N/S Street : Rantoul Street
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File Name : 14850001
Site Code : 14850001
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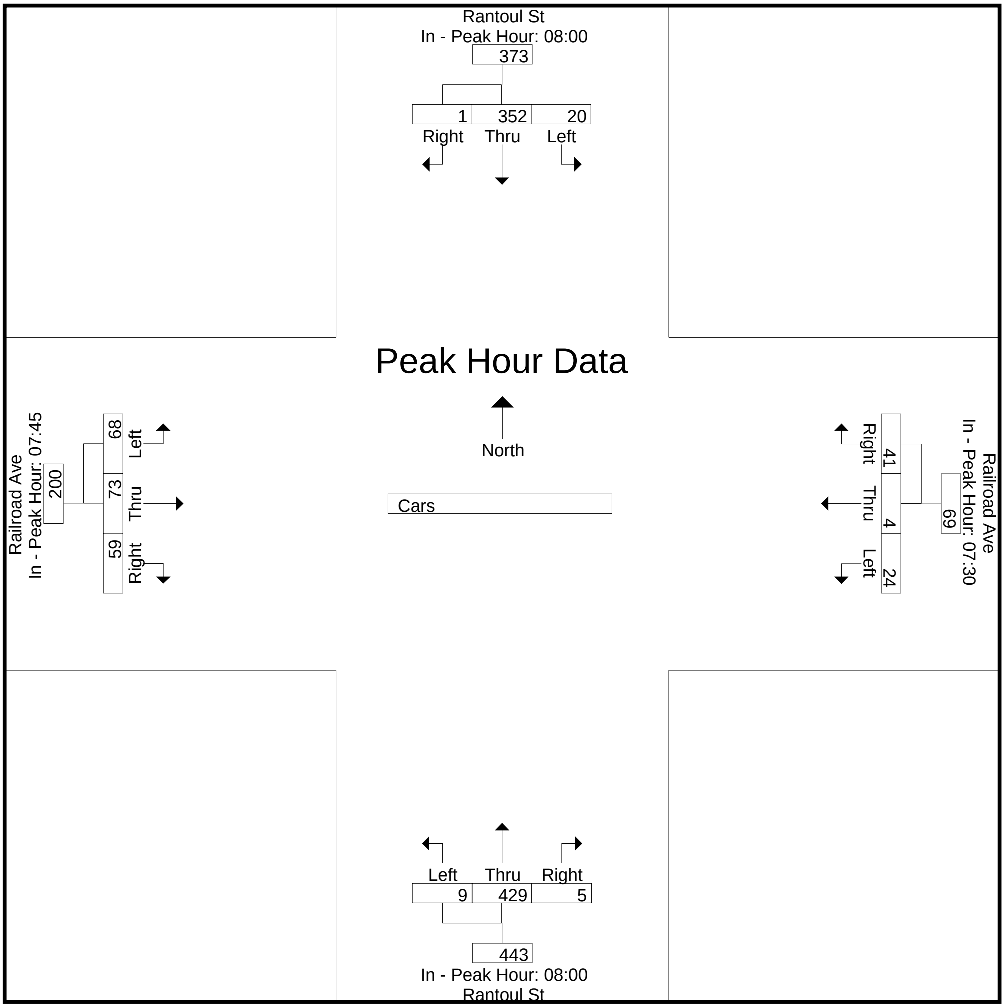

Accurate Counts
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N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 1

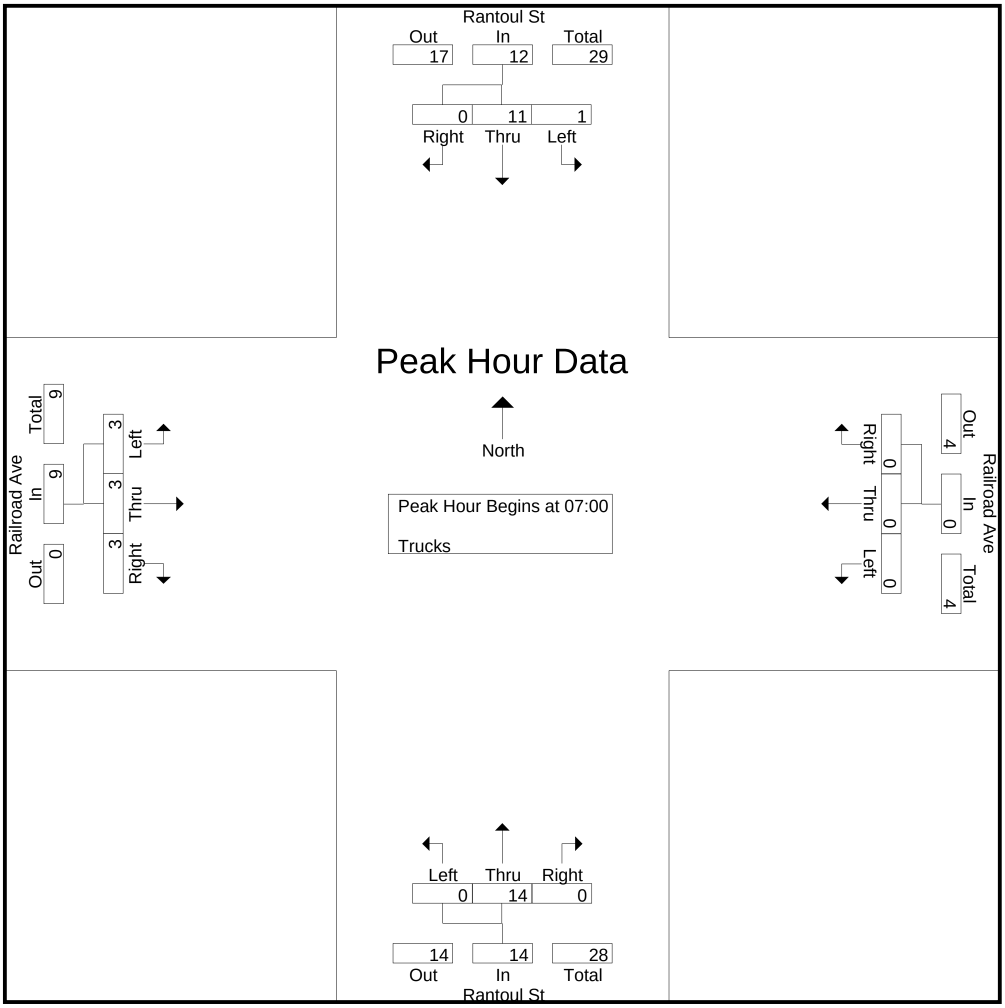
Groups Printed- Trucks

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	4
06:45	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	5
Total	0	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	10
07:00	0	1	0	0	0	0	0	0	0	4	0	0	1	0	1	0	0	7	7
07:15	0	6	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	11	11
07:30	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	6	6
07:45	0	3	0	0	0	0	0	0	0	5	0	0	1	2	0	0	0	11	11
Total	1	11	0	0	0	0	0	0	0	14	0	0	3	3	3	0	0	35	35
08:00	0	1	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	6	6
08:15	0	5	0	0	0	0	0	0	0	2	0	0	1	1	1	0	0	10	10
08:30	1	4	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	8	8
08:45	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	6	6
Total	1	12	0	0	0	0	0	0	0	8	0	0	5	3	1	0	0	30	30
Grand Total	2	28	0	0	0	0	0	0	0	27	0	0	8	6	4	0	0	75	75
Apprch %	6.7	93.3	0		0	0	0		0	100	0		44.4	33.3	22.2				
Total %	2.7	37.3	0		0	0	0		0	36	0		10.7	8	5.3		0	100	

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	0	1	0	1	0	0	0	0	0	4	0	4	**1**		**1**		
07:15	0	**6**	0	**6**	0	0	0	0	0	4	0	4	0	0	1	1	**11**
07:30	**1**	1	0	2	0	0	0	0	0	1	0	1	1	1	1	**3**	6
07:45	0	3	0	3	0	0	0	0	0	**5**	0	**5**	1	**2**	0	3	11
Total Volume	1	11	0	12	0	0	0	0	0	14	0	14	3	3	3	9	35
% App. Total	8.3	91.7	0		0	0	0		0	100	0		33.3	33.3	33.3		
PHF	.250	.458	.000	.500	.000	.000	.000	.000	.000	.700	.000	.700	.750	.375	.750	.750	.795

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2

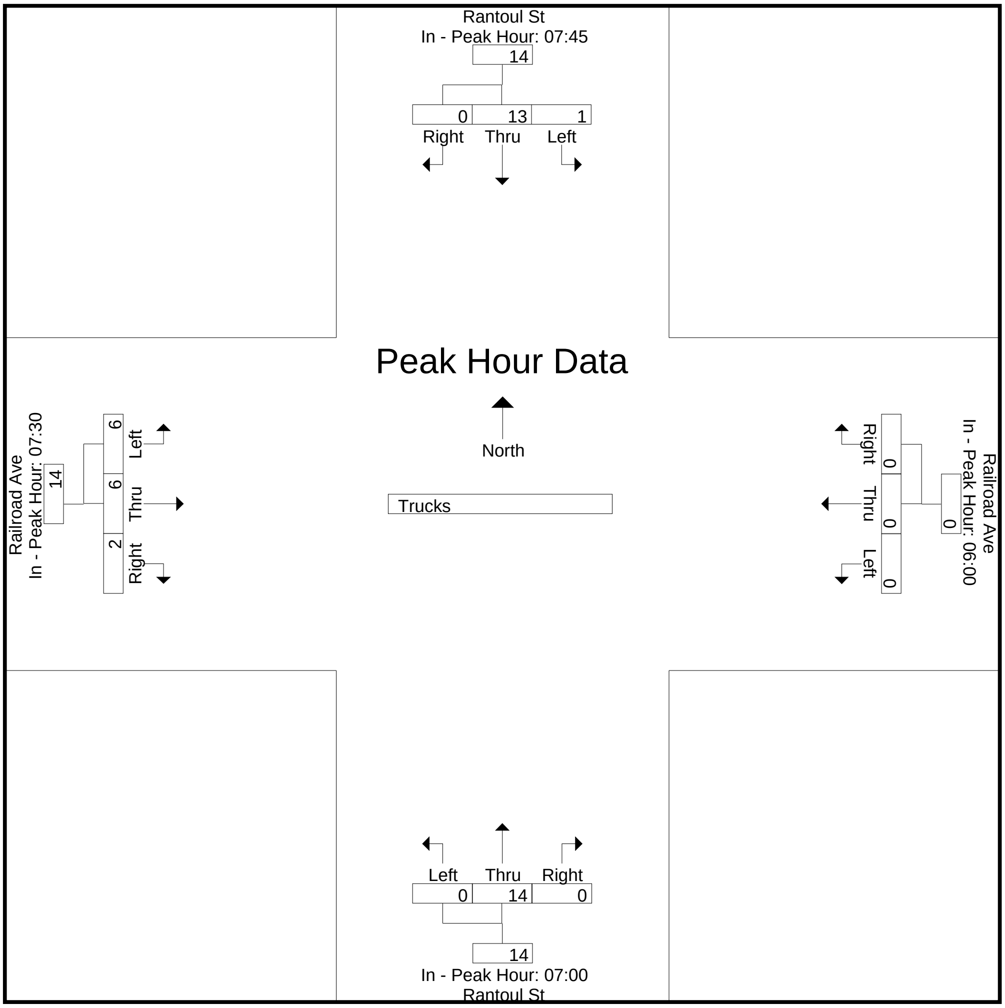


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45				06:00				07:00				07:30			
+0 mins.	0	3	0	3	0	0	0	0	0	4	0	4	1	1	**1**	3
+15 mins.	0	1	0	1	0	0	0	0	0	4	0	4	1	**2**	0	3
+30 mins.	0	**5**	0	**5**	0	0	0	0	0	1	0	1	**3**	2	0	**5**
+45 mins.	**1**	4	0	5	0	0	0	0	0	**5**	0	**5**	1	1	1	3
Total Volume	1	13	0	14	0	0	0	0	0	14	0	14	6	6	2	14
% App. Total	7.1	92.9	0		0	0	0		0	100	0		42.9	42.9	14.3	
PHF	.250	.650	.000	.700	.000	.000	.000	.000	.000	.700	.000	.700	.500	.750	.500	.700

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars - Trucks

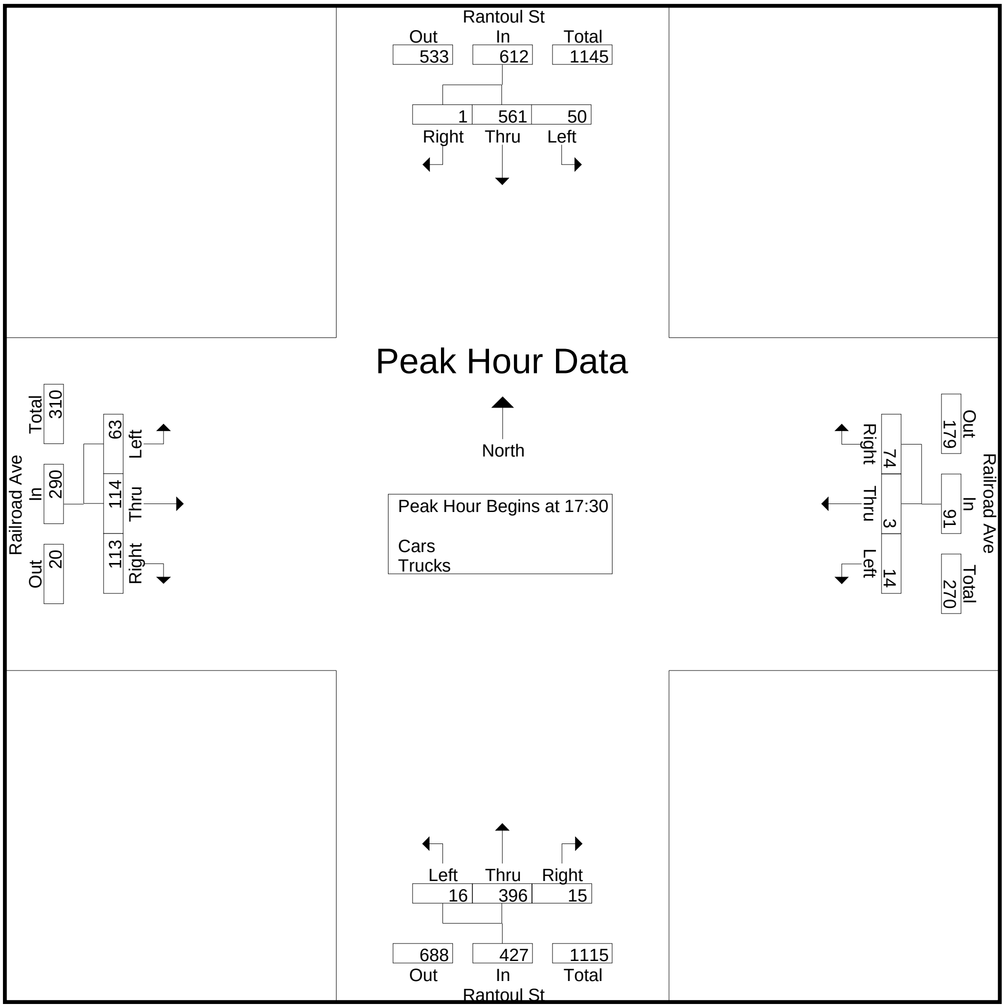
	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	11	102	0	7	4	0	14	3	2	117	2	0	23	20	27	2	12	322	334
16:15	5	102	0	2	7	0	11	1	1	108	4	4	23	24	14	3	10	299	309
16:30	14	140	1	2	2	0	15	3	3	94	1	0	17	20	18	5	10	325	335
16:45	11	95	0	1	2	1	22	1	5	136	3	0	17	18	16	0	2	326	328
Total	41	439	1	12	15	1	62	8	11	455	10	4	80	82	75	10	34	1272	1306
17:00	11	116	0	3	2	0	16	8	3	112	2	0	9	19	18	0	11	308	319
17:15	10	134	0	0	2	0	18	8	1	93	2	0	19	28	20	3	11	327	338
17:30	13	144	0	5	2	0	23	6	2	110	5	0	10	18	33	2	13	360	373
17:45	12	156	1	7	5	2	18	3	3	112	2	0	16	25	25	10	20	377	397
Total	46	550	1	15	11	2	75	25	9	427	11	0	54	90	96	15	55	1372	1427
18:00	10	135	0	5	4	0	12	6	4	81	5	2	17	35	29	2	15	332	347
18:15	15	126	0	11	3	1	21	1	7	93	3	1	20	36	26	12	25	351	376
18:30	12	104	0	2	4	0	14	6	1	74	5	0	14	34	25	2	10	287	297
18:45	8	99	0	1	3	0	9	3	1	98	2	0	15	32	26	3	7	293	300
Total	45	464	0	19	14	1	56	16	13	346	15	3	66	137	106	19	57	1263	1320
Grand Total	132	1453	2	46	40	4	193	49	33	1228	36	7	200	309	277	44	146	3907	4053
Apprch %	8.3	91.6	0.1		16.9	1.7	81.4		2.5	94.7	2.8		25.4	39.3	35.2				
Total %	3.4	37.2	0.1		1	0.1	4.9		0.8	31.4	0.9		5.1	7.9	7.1		3.6	96.4	
Cars	131	1436	1		39	4	190		31	1204	35		196	304	271		0	0	3988
% Cars	99.2	98.8	50	100	97.5	100	98.4	100	93.9	98	97.2	100	98	98.4	97.8	100	0	0	98.4
Trucks	1	17	1		1	0	3		2	24	1		4	5	6		0	0	65
% Trucks	0.8	1.2	50	0	2.5	0	1.6	0	6.1	2	2.8	0	2	1.6	2.2	0	0	0	1.6

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:30																	
17:30	13	144	0	157	2	0	**23**	**25**			**5**	**117**			**33**		
17:45	12	**156**	**1**	**169**	**5**	**2**	18	25	3	**112**	2	117	16	25	25	66	**377**
18:00	10	135	0	145	4	0	12	16	4	81	5	90	17	35	29	81	332
18:15	**15**	126	0	141	3	1	21	25	**7**	93	3	103	**20**	**36**	26	**82**	351
Total Volume	50	561	1	612	14	3	74	91	16	396	15	427	63	114	113	290	1420
% App. Total	8.2	91.7	0.2		15.4	3.3	81.3		3.7	92.7	3.5		21.7	39.3	39		
PHF	.833	.899	.250	.905	.700	.375	.804	.910	.571	.884	.750	.912	.788	.792	.856	.884	.942

Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2

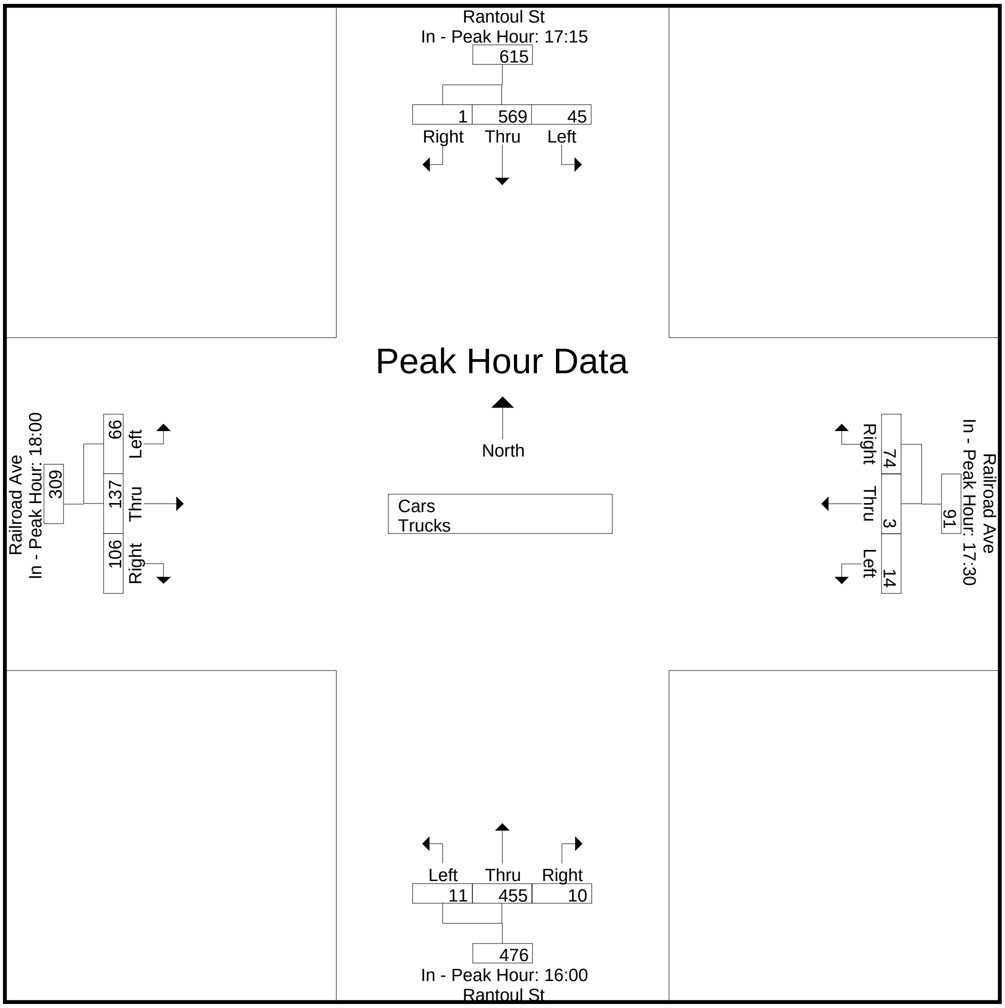


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	17:15				17:30				16:00				18:00			
+0 mins.	10	134	0	144	2	0	**23**	**25**	2	117	2	121	17	35	**29**	81
+15 mins.	**13**	144	0	157	**5**	**2**	18	25	1	108	**4**	113	**20**	**36**	26	**82**
+30 mins.	12	**156**	**1**	**169**	4	0	12	16	3	94	1	98	14	34	25	73
+45 mins.	10	135	0	145	3	1	21	25	**5**	**136**	3	**144**	15	32	26	73
Total Volume	45	569	1	615	14	3	74	91	11	455	10	476	66	137	106	309
% App. Total	7.3	92.5	0.2		15.4	3.3	81.3		2.3	95.6	2.1		21.4	44.3	34.3	
PHF	.865	.912	.250	.910	.700	.375	.804	.910	.550	.836	.625	.826	.825	.951	.914	.942

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rantoul Street	File Name : 14850001
E/W Street: Railroad Avenue	Site Code : 14850001
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

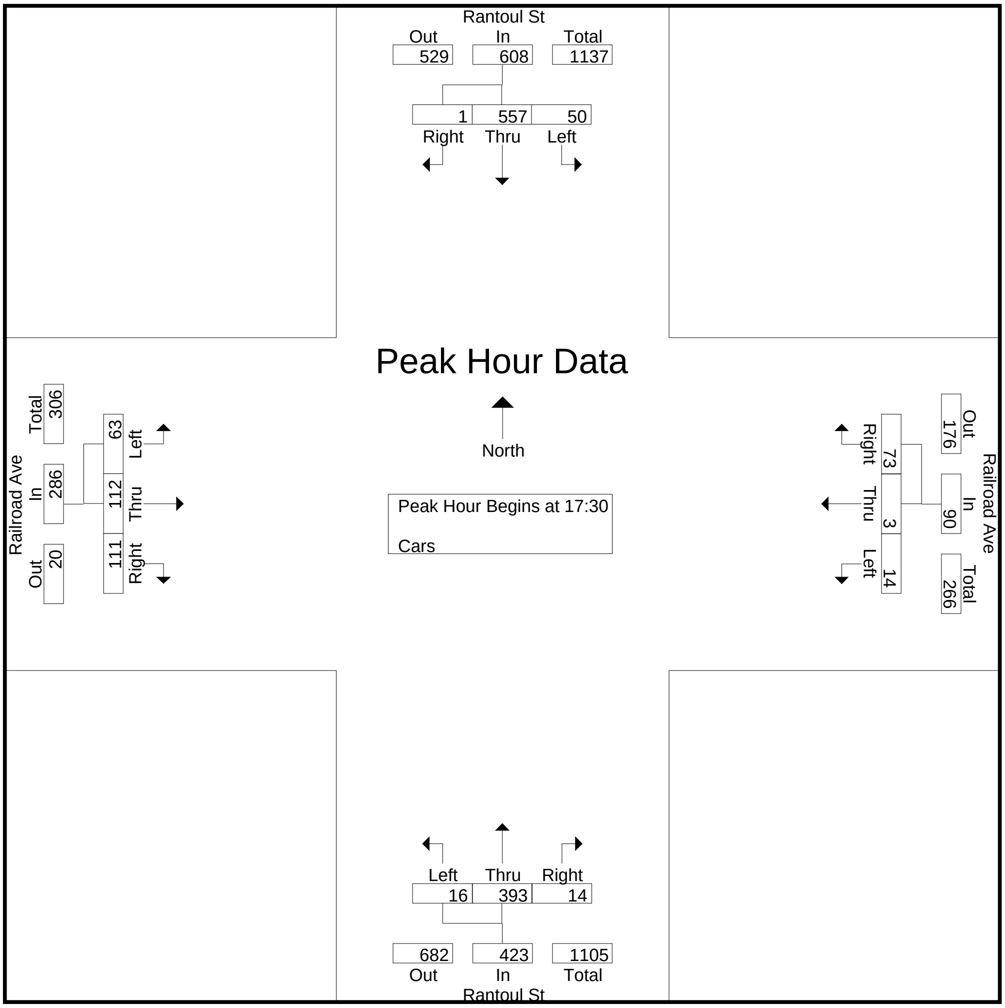
Groups Printed- Cars

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	11	100	0	7	4	0	14	3	2	111	2	0	23	20	26	2	12	313	325
16:15	5	100	0	2	6	0	10	1	1	102	4	4	23	24	13	3	10	288	298
16:30	14	137	0	2	2	0	15	3	3	92	1	0	16	19	18	5	10	317	327
16:45	11	93	0	1	2	1	22	1	5	134	3	0	17	18	16	0	2	322	324
Total	41	430	0	12	14	1	61	8	11	439	10	4	79	81	73	10	34	1240	1274
17:00	11	116	0	3	2	0	16	8	1	108	2	0	6	19	17	0	11	298	309
17:15	9	131	0	0	2	0	17	8	1	93	2	0	19	27	19	3	11	320	331
17:30	13	142	0	5	2	0	22	6	2	109	4	0	10	18	33	2	13	355	368
17:45	12	156	1	7	5	2	18	3	3	111	2	0	16	23	25	10	20	374	394
Total	45	545	1	15	11	2	73	25	7	421	10	0	51	87	94	15	55	1347	1402
18:00	10	134	0	5	4	0	12	6	4	80	5	2	17	35	28	2	15	329	344
18:15	15	125	0	11	3	1	21	1	7	93	3	1	20	36	25	12	25	349	374
18:30	12	103	0	2	4	0	14	6	1	73	5	0	14	33	25	2	10	284	294
18:45	8	99	0	1	3	0	9	3	1	98	2	0	15	32	26	3	7	293	300
Total	45	461	0	19	14	1	56	16	13	344	15	3	66	136	104	19	57	1255	1312
Grand Total	131	1436	1	46	39	4	190	49	31	1204	35	7	196	304	271	44	146	3842	3988
Apprch %	8.4	91.6	0.1		16.7	1.7	81.5		2.4	94.8	2.8		25.4	39.4	35.1				
Total %	3.4	37.4	0		1	0.1	4.9		0.8	31.3	0.9		5.1	7.9	7.1		3.7	96.3	

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:30																	
17:30	13	142	0	155	2	0	**22**								**33**		
17:45	12	**156**	**1**	**169**	**5**	**2**	18	**25**	3	**111**	2	**116**	16	23	25	64	**374**
18:00	10	134	0	144	4	0	12	16	4	80	**5**	89	17	35	28	80	329
18:15	**15**	125	0	140	3	1	21	25	**7**	93	3	103	**20**	**36**	25	**81**	349
Total Volume	50	557	1	608	14	3	73	90	16	393	14	423	63	112	111	286	1407
% App. Total	8.2	91.6	0.2		15.6	3.3	81.1		3.8	92.9	3.3		22	39.2	38.8		
PHF	.833	.893	.250	.899	.700	.375	.830	.900	.571	.885	.700	.912	.788	.778	.841	.883	.941

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2

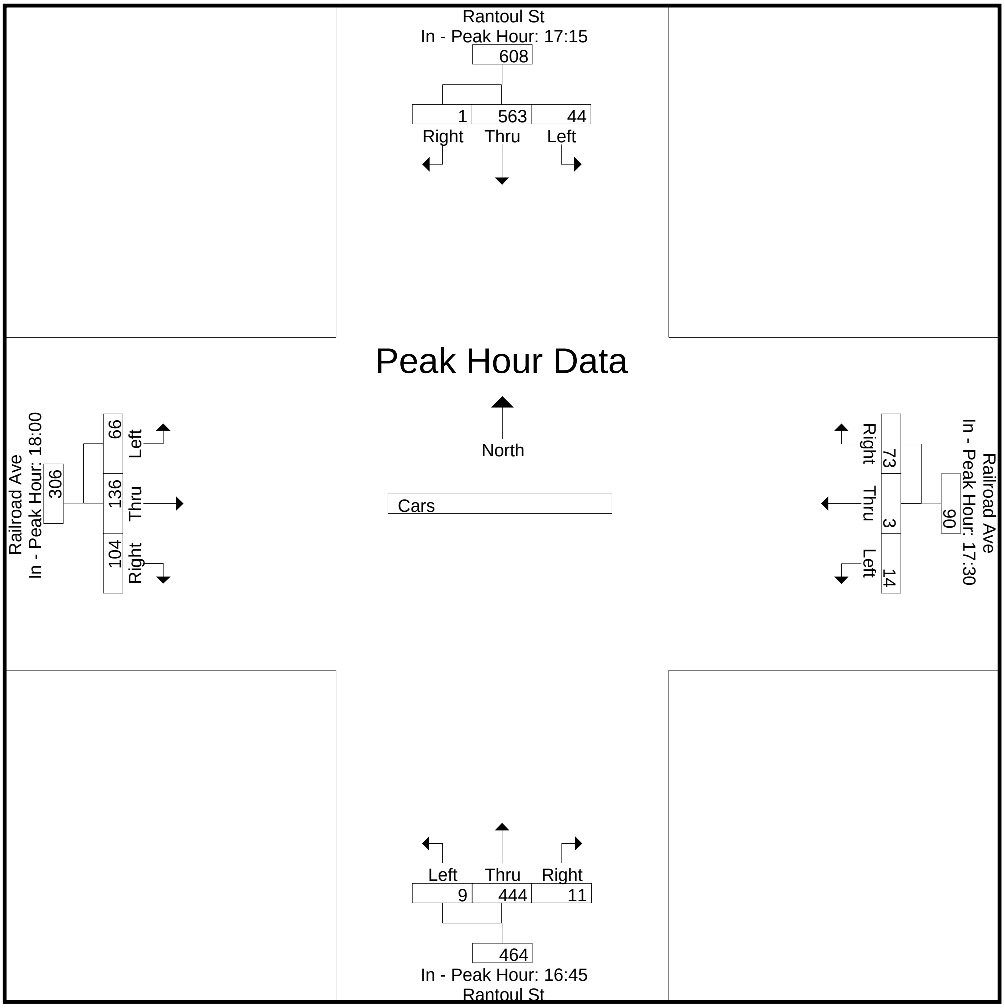


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	17:15				17:30				16:45				18:00			
+0 mins.	9	131	0	140	2	0	**22**	24	**5**	**134**	3	**142**	17	35	**28**	80
+15 mins.	**13**	142	0	155	**5**	**2**	18	**25**	1	108	2	111	**20**	**36**	25	**81**
+30 mins.	12	**156**	**1**	**169**	4	0	12	16	1	93	2	96	14	33	25	72
+45 mins.	10	134	0	144	3	1	21	25	2	109	**4**	115	15	32	26	73
Total Volume	44	563	1	608	14	3	73	90	9	444	11	464	66	136	104	306
% App. Total	7.2	92.6	0.2		15.6	3.3	81.1		1.9	95.7	2.4		21.6	44.4	34	
PHF	.846	.902	.250	.899	.700	.375	.830	.900	.450	.828	.688	.817	.825	.944	.929	.944

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010



N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 1

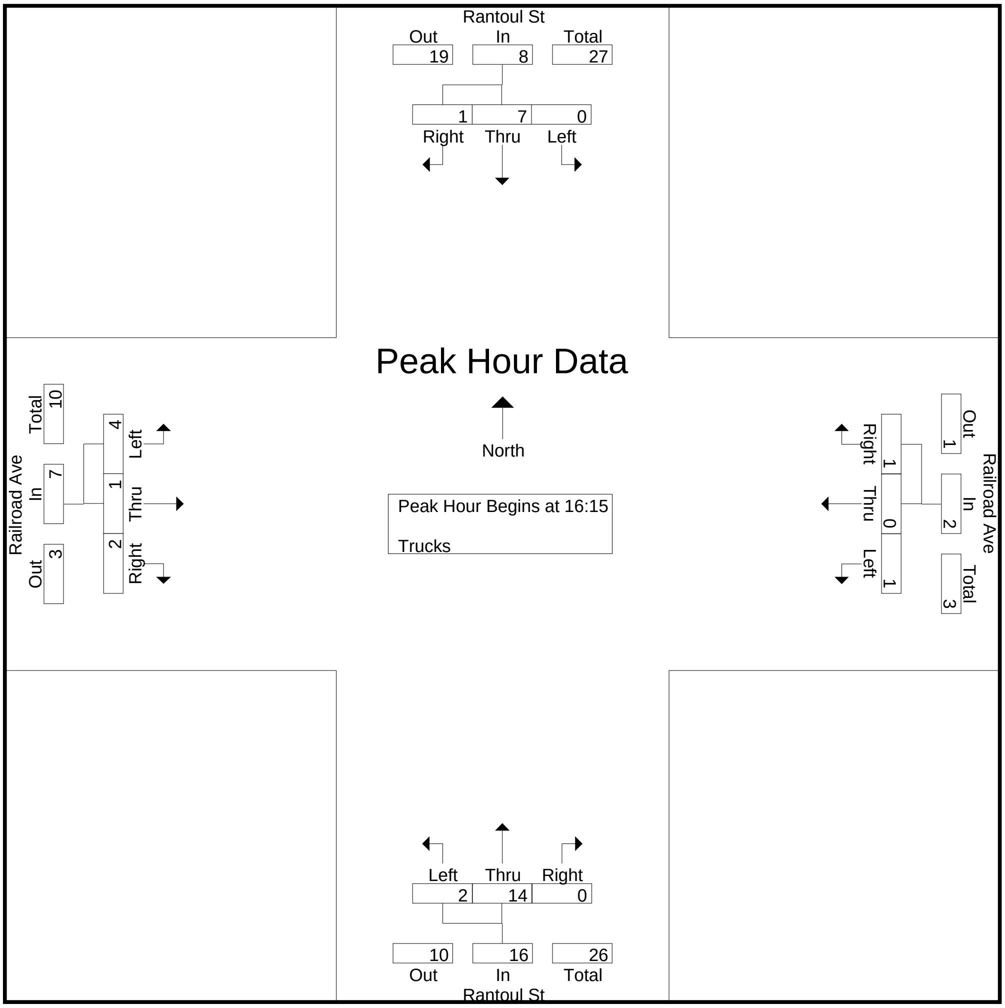
Groups Printed- Trucks

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	2	0	0	0	0	0	0	0	6	0	0	0	0	1	0	0	9	9
16:15	0	2	0	0	1	0	1	0	0	6	0	0	0	0	1	0	0	11	11
16:30	0	3	1	0	0	0	0	0	0	2	0	0	1	1	0	0	0	8	8
16:45	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	4
Total	0	9	1	0	1	0	1	0	0	16	0	0	1	1	2	0	0	32	32
17:00	0	0	0	0	0	0	0	0	2	4	0	0	3	0	1	0	0	10	10
17:15	1	3	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	7	7
17:30	0	2	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	5	5
17:45	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3	3
Total	1	5	0	0	0	0	2	0	2	6	1	0	3	3	2	0	0	25	25
18:00	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3	3
18:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2
18:30	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3	3
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0	8	8
Grand Total	1	17	1	0	1	0	3	0	2	24	1	0	4	5	6	0	0	65	65
Apprch %	5.3	89.5	5.3		25	0	75		7.4	88.9	3.7		26.7	33.3	40				
Total %	1.5	26.2	1.5		1.5	0	4.6		3.1	36.9	1.5		6.2	7.7	9.2		0	100	

	Rantoul St From North				**Railroad Ave From East**				**Rantoul St From South**				**Railroad Ave From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	2	0	2	**1**		**1**	**2**		**6**		**6**			**1**		**11**
16:30	0	**3**	**1**	**4**	0	0	0	0	0	2	0	2	1	**1**	0	2	8
16:45	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
17:00	0	0	0	0	0	0	0	0	**2**	4	0	6	**3**	0	1	**4**	10
Total Volume	0	7	1	8	1	0	1	2	2	14	0	16	4	1	2	7	33
% App. Total	0	87.5	12.5		50	0	50		12.5	87.5	0		57.1	14.3	28.6		
PHF	.000	.583	.250	.500	.250	.000	.250	.250	.250	.583	.000	.667	.333	.250	.500	.438	.750

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 2

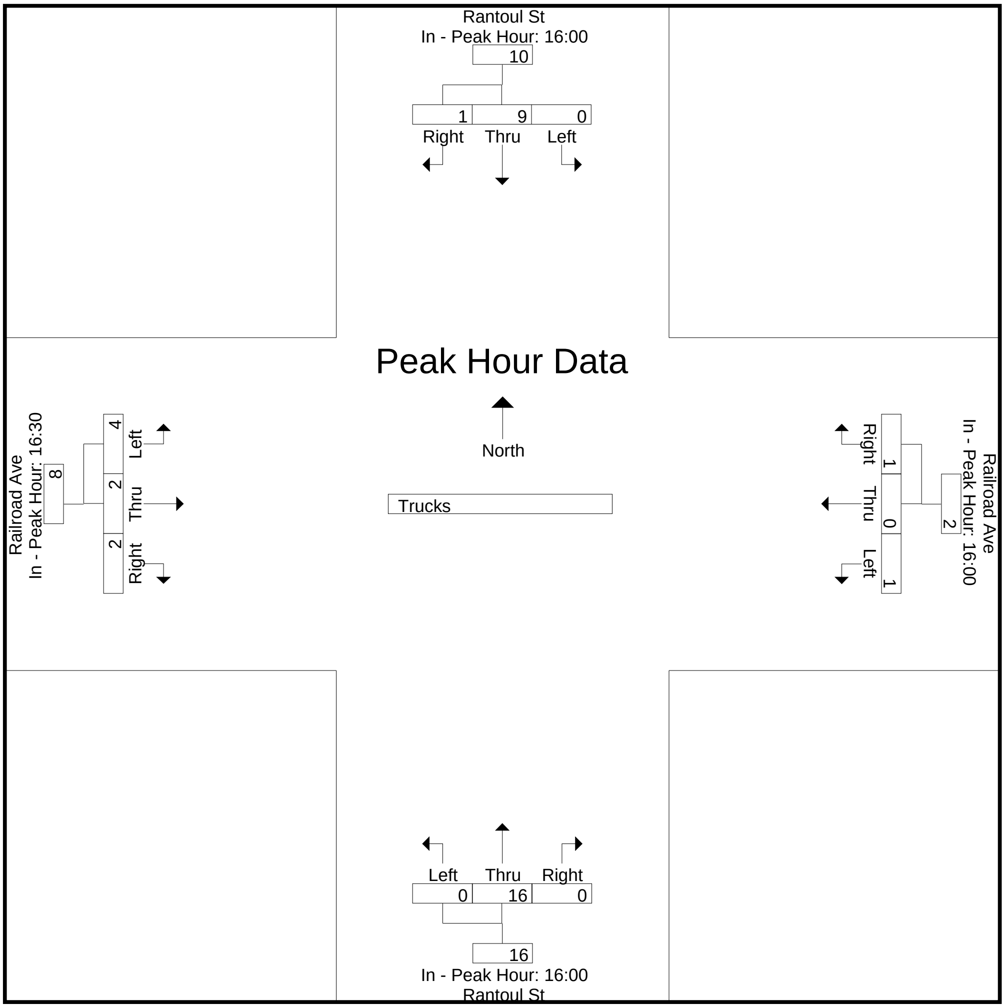


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				16:00				16:00				16:30			
+0 mins.	0	2	0	2	0	0	0	0	0	**6**	0	**6**	1	**1**	0	2
+15 mins.	0	2	0	2	**1**	0	**1**	**2**	0	6	0	6	0	0	0	0
+30 mins.	0	**3**	**1**	**4**	0	0	0	0	0	2	0	2	**3**	0	**1**	**4**
+45 mins.	0	2	0	2	0	0	0	0	0	2	0	2	0	1	1	2
Total Volume	0	9	1	10	1	0	1	2	0	16	0	16	4	2	2	8
% App. Total	0	90	10		50	0	50		0	100	0		50	25	25	
PHF	.000	.750	.250	.625	.250	.000	.250	.250	.000	.667	.000	.667	.333	.500	.500	.500

N/S Street : Rantoul Street
E/W Street: Railroad Avenue
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850001
Site Code : 14850001
Start Date : 10/28/2010
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rantoul Street	File Name : 14850002
E/W Street: Pleasant Street	Site Code : 14850002
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

Groups Printed- Cars - Trucks

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	36	5	0	3	4	3	1	10	47	0	0	0	0	0	1	2	108	110
06:15	0	37	11	0	0	3	3	0	15	36	0	0	0	0	0	2	2	105	107
06:30	0	44	7	4	0	7	0	0	24	65	0	0	0	0	0	2	6	147	153
06:45	0	59	6	1	1	8	3	0	18	82	0	0	0	0	0	1	2	177	179
Total	0	176	29	5	4	22	9	1	67	230	0	0	0	0	0	6	12	537	549
07:00	0	82	4	2	1	9	3	1	34	60	0	0	0	0	0	6	9	193	202
07:15	0	89	8	1	0	12	2	1	25	71	0	0	0	0	0	9	11	207	218
07:30	0	97	10	1	1	5	5	3	20	98	0	0	0	0	0	8	12	236	248
07:45	0	91	4	0	3	6	5	0	22	106	0	2	0	0	0	2	4	237	241
Total	0	359	26	4	5	32	15	5	101	335	0	2	0	0	0	25	36	873	909
08:00	0	91	4	0	1	7	1	1	24	90	0	0	0	0	0	2	3	218	221
08:15	0	116	5	1	1	1	3	0	26	104	0	1	0	0	0	0	2	256	258
08:30	0	98	3	0	0	10	2	1	25	94	0	0	0	0	0	1	2	232	234
08:45	0	121	2	0	3	7	3	0	24	139	1	0	0	0	0	1	1	300	301
Total	0	426	14	1	5	25	9	2	99	427	1	1	0	0	0	4	8	1006	1014
Grand Total	0	961	69	10	14	79	33	8	267	992	1	3	0	0	0	35	56	2416	2472
Apprch %	0	93.3	6.7		11.1	62.7	26.2		21.2	78.7	0.1		0	0	0				
Total %	0	39.8	2.9		0.6	3.3	1.4		11.1	41.1	0		0	0	0		2.3	97.7	
Cars	0	944	69		14	79	33		264	986	1		0	0	0		0	0	2446
% Cars	0	98.2	100	100	100	100	100	100	98.9	99.4	100	100	0	0	0	100	0	0	98.9
Trucks	0	17	0		0	0	0		3	6	0		0	0	0		0	0	26
% Trucks	0	1.8	0	0	0	0	0	0	1.1	0.6	0	0	0	0	0	0	0	0	1.1

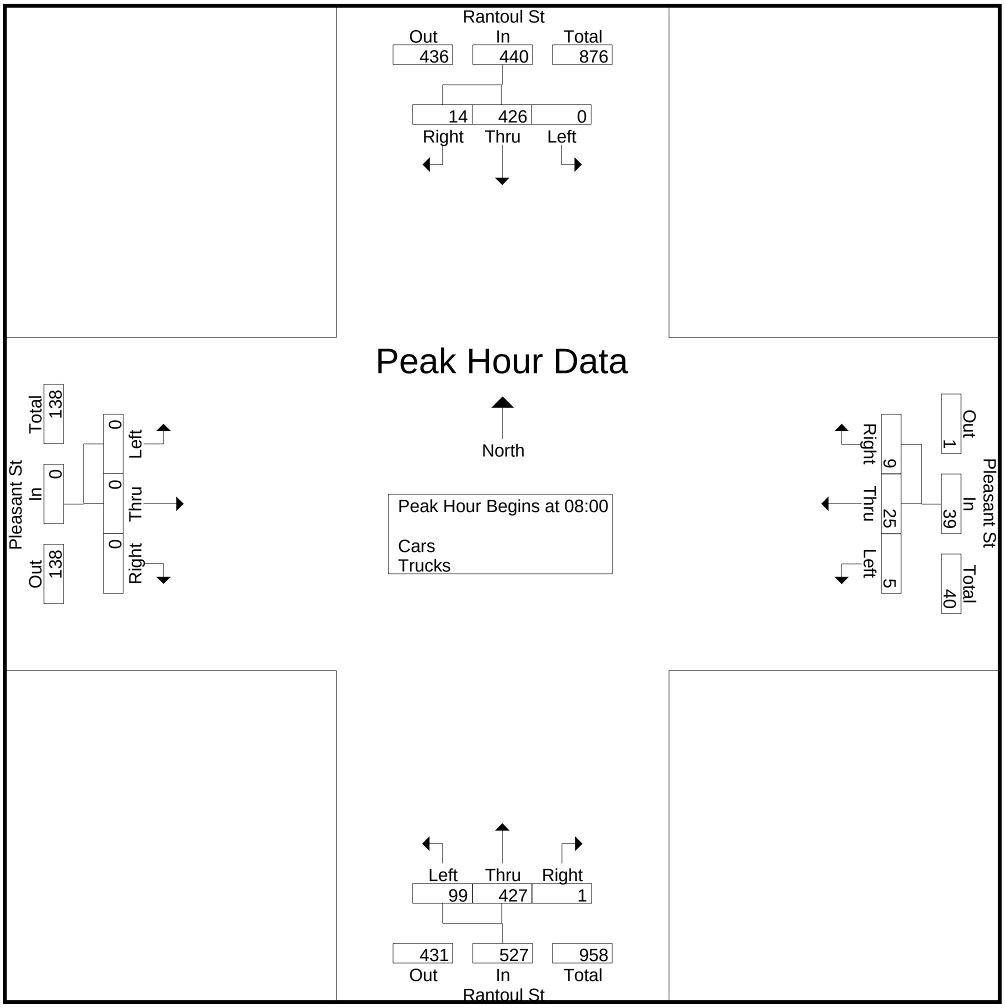
	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	91	4	95	1	7	1	9	24	90	0	114	0	0	0	0	218
08:15	0	116	**5**				**3**		**26**								
08:30	0	98	3	101	0	**10**	2	12	25	94	0	119	0	0	0	0	232
08:45	0	**121**	2	**123**	**3**	7	3	**13**	24	**139**	**1**	**164**	0	0	0	0	**300**
Total Volume	0	426	14	440	5	25	9	39	99	427	1	527	0	0	0	0	1006
% App. Total	0	96.8	3.2		12.8	64.1	23.1		18.8	81	0.2		0	0	0		
PHF	.000	.880	.700	.894	.417	.625	.750	.750	.952	.768	.250	.803	.000	.000	.000	.000	.838

Accurate Counts

978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 2

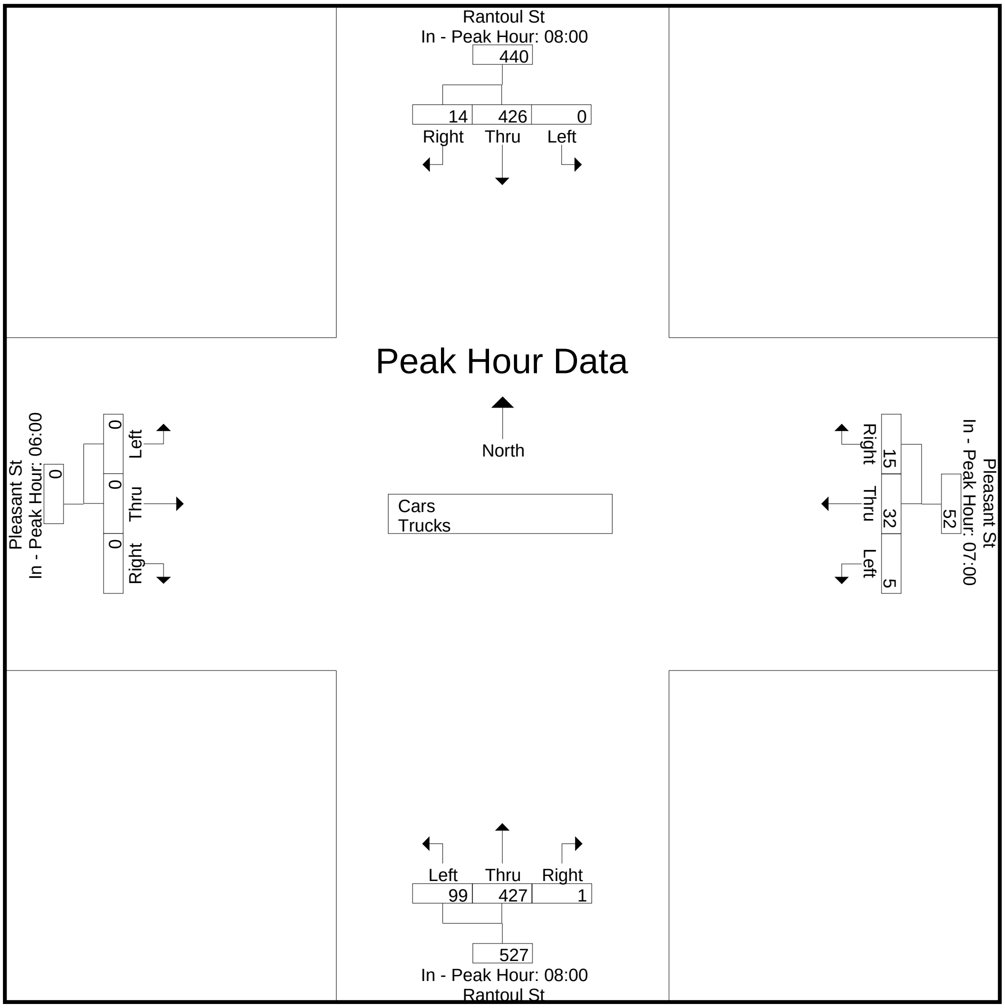


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00				07:00				08:00				06:00			
+0 mins.	0	91	4	95	1	9	3	13	24	90	0	114	0	0	0	0
+15 mins.	0	116	**5**	121	0	**12**	2	**14**	**26**	104	0	130	0	0	0	0
+30 mins.	0	98	3	101	1	5	**5**	11	25	94	0	119	0	0	0	0
+45 mins.	0	**121**	2	**123**	**3**	6	5	14	24	**139**	**1**	**164**	0	0	0	0
Total Volume	0	426	14	440	5	32	15	52	99	427	1	527	0	0	0	0
% App. Total	0	96.8	3.2		9.6	61.5	28.8		18.8	81	0.2		0	0	0	
PHF	.000	.880	.700	.894	.417	.667	.750	.929	.952	.768	.250	.803	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Rantoul Street	File Name : 14850002
E/W Street: Pleasant Street	Site Code : 14850002
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 3



Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

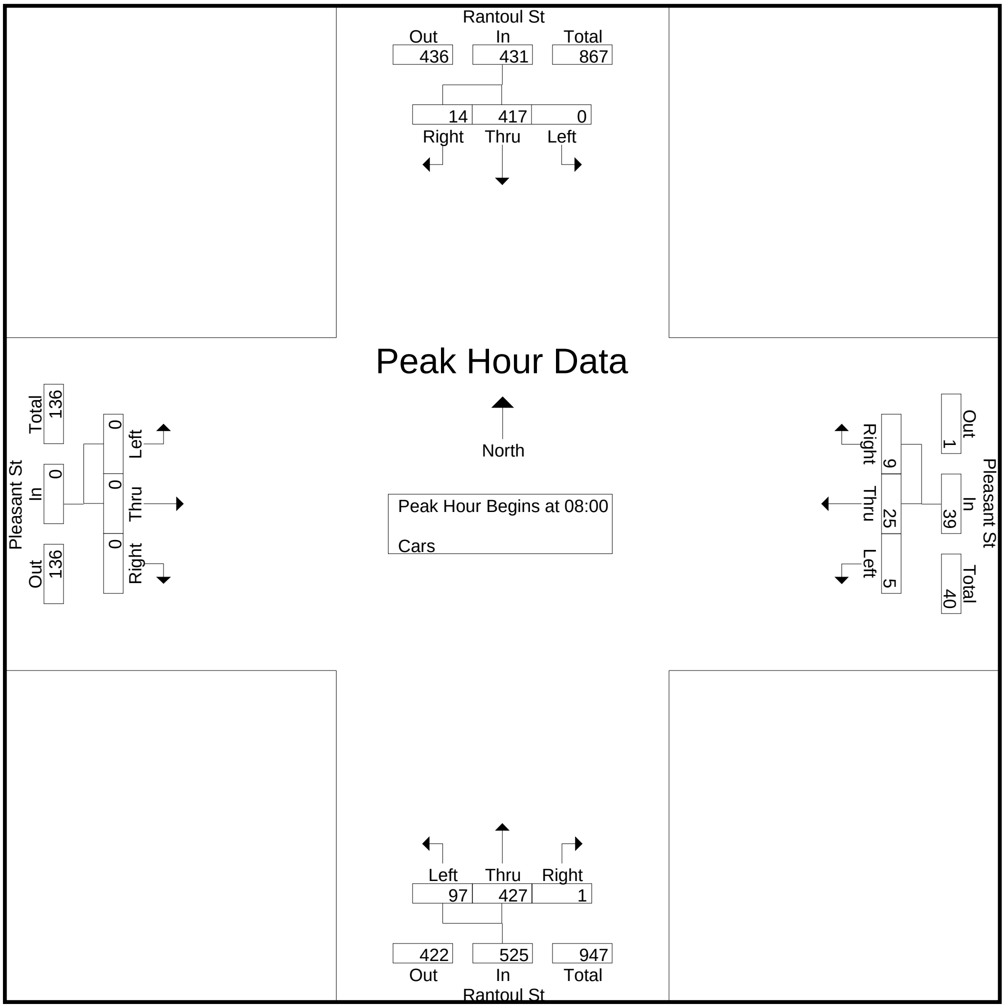
	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	35	5	0	3	4	3	1	10	46	0	0	0	0	0	1	2	106	108
06:15	0	37	11	0	0	3	3	0	15	36	0	0	0	0	0	2	2	105	107
06:30	0	43	7	4	0	7	0	0	24	64	0	0	0	0	0	2	6	145	151
06:45	0	57	6	1	1	8	3	0	18	81	0	0	0	0	0	1	2	174	176
Total	0	172	29	5	4	22	9	1	67	227	0	0	0	0	0	6	12	530	542
07:00	0	81	4	2	1	9	3	1	34	59	0	0	0	0	0	6	9	191	200
07:15	0	88	8	1	0	12	2	1	25	70	0	0	0	0	0	9	11	205	216
07:30	0	96	10	1	1	5	5	3	20	98	0	0	0	0	0	8	12	235	247
07:45	0	90	4	0	3	6	5	0	21	105	0	2	0	0	0	2	4	234	238
Total	0	355	26	4	5	32	15	5	100	332	0	2	0	0	0	25	36	865	901
08:00	0	89	4	0	1	7	1	1	23	90	0	0	0	0	0	2	3	215	218
08:15	0	111	5	1	1	1	3	0	25	104	0	1	0	0	0	0	2	250	252
08:30	0	97	3	0	0	10	2	1	25	94	0	0	0	0	0	1	2	231	233
08:45	0	120	2	0	3	7	3	0	24	139	1	0	0	0	0	1	1	299	300
Total	0	417	14	1	5	25	9	2	97	427	1	1	0	0	0	4	8	995	1003
Grand Total	0	944	69	10	14	79	33	8	264	986	1	3	0	0	0	35	56	2390	2446
Apprch %	0	93.2	6.8		11.1	62.7	26.2		21.1	78.8	0.1		0	0	0				
Total %	0	39.5	2.9		0.6	3.3	1.4		11	41.3	0		0	0	0		2.3	97.7	

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	89	4	93	1	7	1	9	23	90	0	113	0	0	0	0	215
08:15	0	111	**5**				**3**		**25**								
08:30	0	97	3	100	0	**10**	2	12	25	94	0	119	0	0	0	0	231
08:45	0	**120**	2	**122**	**3**	7	3	**13**	24	**139**	**1**	**164**	0	0	0	0	**299**
Total Volume	0	417	14	431	5	25	9	39	97	427	1	525	0	0	0	0	995
% App. Total	0	96.8	3.2		12.8	64.1	23.1		18.5	81.3	0.2		0	0	0		
PHF	.000	.869	.700	.883	.417	.625	.750	.750	.970	.768	.250	.800	.000	.000	.000	.000	.832

Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 2

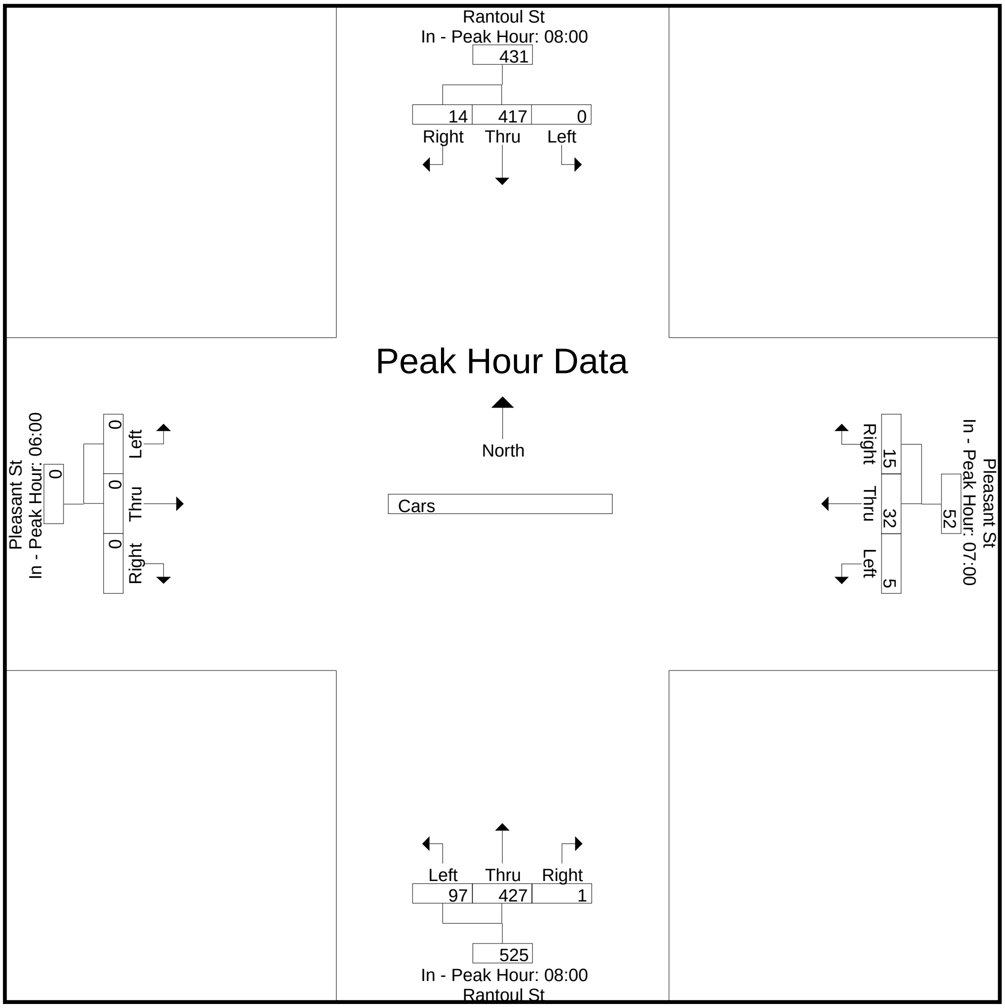


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00				07:00				08:00				06:00			
+0 mins.	0	89	4	93	1	9	3	13	23	90	0	113	0	0	0	0
+15 mins.	0	111	**5**	116	0	**12**	2	**14**	**25**	104	0	129	0	0	0	0
+30 mins.	0	97	3	100	1	5	**5**	11	25	94	0	119	0	0	0	0
+45 mins.	0	**120**	2	**122**	**3**	6	5	14	24	**139**	**1**	**164**	0	0	0	0
Total Volume	0	417	14	431	5	32	15	52	97	427	1	525	0	0	0	0
% App. Total	0	96.8	3.2		9.6	61.5	28.8		18.5	81.3	0.2		0	0	0	
PHF	.000	.869	.700	.883	.417	.667	.750	.929	.970	.768	.250	.800	.000	.000	.000	.000

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 1

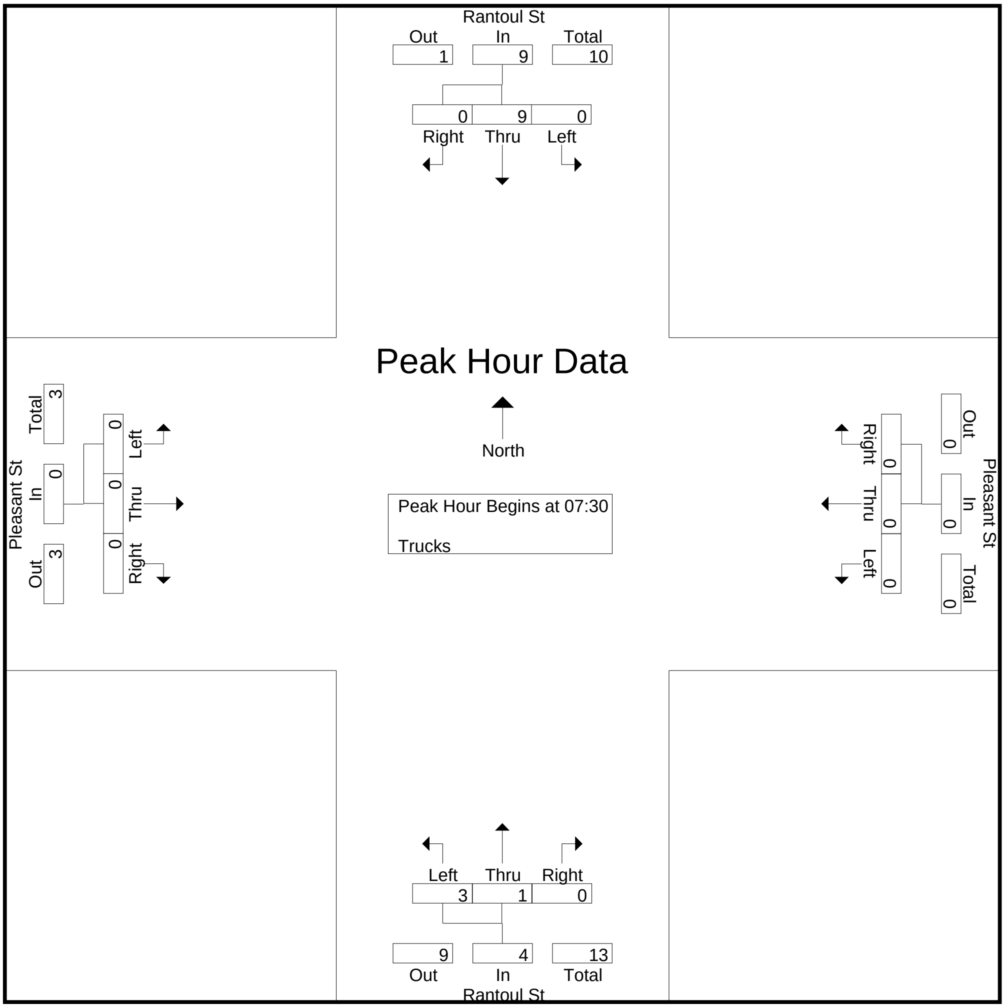
Groups Printed- Trucks

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
06:45	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	3
Total	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	7	7
07:00	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
07:15	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
07:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3	3
Total	0	4	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	8	8
08:00	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	3
08:15	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6	6
08:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	9	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	11	11
Grand Total	0	17	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	26	26
Apprch %	0	100	0		0	0	0		33.3	66.7	0		0	0	0				
Total %	0	65.4	0		0	0	0		11.5	23.1	0		0	0	0		0	100	

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45	0	1	0	1	0	0	0	0	**1**	**1**		**2**					
08:00	0	2	0	2	0	0	0	0	1	0	0	1	0	0	0	0	3
08:15	0	**5**	0	**5**	0	0	0	0	1	0	0	1	0	0	0	0	**6**
Total Volume	0	9	0	9	0	0	0	0	3	1	0	4	0	0	0	0	13
% App. Total	0	100	0		0	0	0		75	25	0		0	0	0		
PHF	.000	.450	.000	.450	.000	.000	.000	.000	.750	.250	.000	.500	.000	.000	.000	.000	.542

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 2

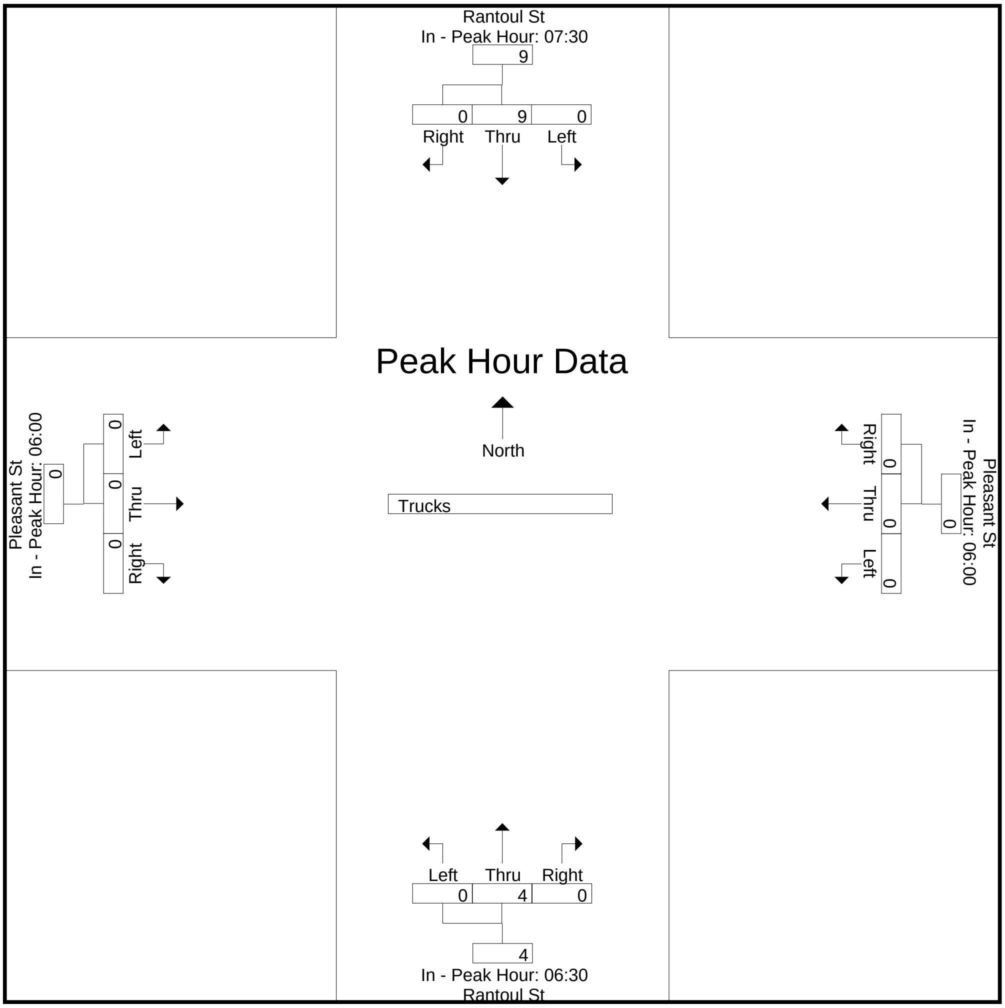


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30				06:00				06:30				06:00			
+0 mins.	0	1	0	1	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	**5**	0	**5**	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	9	0	9	0	0	0	0	0	4	0	4	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.450	.000	.450	.000	.000	.000	.000	.000	1.000	.000	1.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Rantoul Street	File Name : 14850002
E/W Street: Pleasant Street	Site Code : 14850002
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 3



Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 1

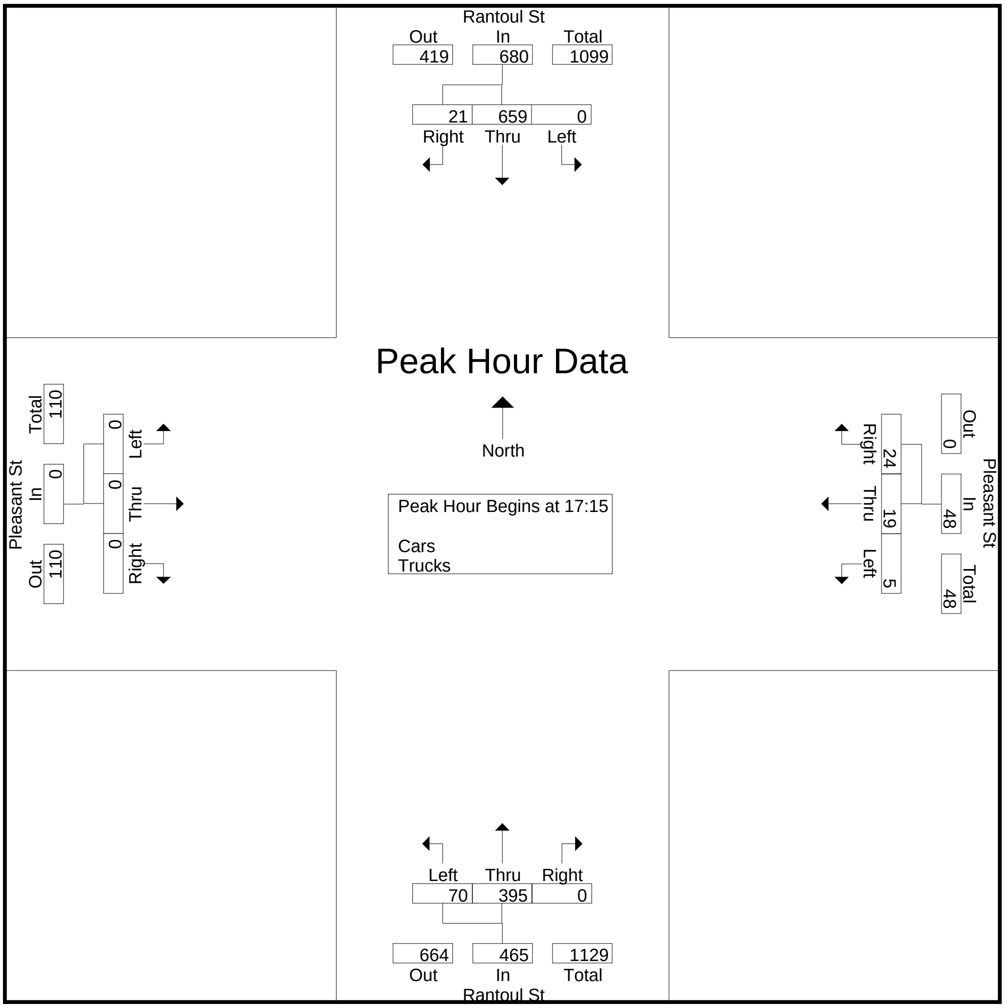
Groups Printed- Cars - Trucks

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	130	3	0	4	7	5	0	19	110	0	0	0	0	0	0	0	278	278
16:15	0	116	5	0	0	7	2	0	21	107	0	0	0	0	0	2	2	258	260
16:30	0	147	12	1	1	3	1	0	18	98	0	0	0	0	0	0	1	280	281
16:45	0	109	3	1	2	1	3	0	18	139	0	0	0	0	0	3	4	275	279
Total	0	502	23	2	7	18	11	0	76	454	0	0	0	0	0	5	7	1091	1098
17:00	0	128	5	0	1	5	1	0	15	112	0	0	0	0	0	0	0	267	267
17:15	0	148	6	0	2	6	5	0	21	94	0	0	0	0	0	0	0	282	282
17:30	0	171	2	0	0	2	4	0	13	109	0	0	0	0	0	2	2	301	303
17:45	0	181	6	0	1	6	6	0	16	109	0	0	0	0	0	0	0	325	325
Total	0	628	19	0	4	19	16	0	65	424	0	0	0	0	0	2	2	1175	1177
18:00	0	159	7	0	2	5	9	0	20	83	0	0	0	0	0	0	0	285	285
18:15	0	150	4	0	1	2	0	1	15	99	0	0	0	0	0	0	1	271	272
18:30	0	131	4	3	1	4	6	0	14	75	1	1	0	0	0	0	4	236	240
18:45	0	124	1	0	4	5	4	0	18	97	0	0	0	0	0	0	0	253	253
Total	0	564	16	3	8	16	19	1	67	354	1	1	0	0	0	0	5	1045	1050
Grand Total	0	1694	58	5	19	53	46	1	208	1232	1	1	0	0	0	7	14	3311	3325
Apprch %	0	96.7	3.3		16.1	44.9	39		14.4	85.5	0.1		0	0	0				
Total %	0	51.2	1.8		0.6	1.6	1.4		6.3	37.2	0		0	0	0		0.4	99.6	
Cars	0	1685	57		19	53	46		205	1226	1		0	0	0		0	0	3306
% Cars	0	99.5	98.3	100	100	100	100	100	98.6	99.5	100	100	0	0	0	100	0	0	99.4
Trucks	0	9	1		0	0	0		3	6	0		0	0	0		0	0	19
% Trucks	0	0.5	1.7	0	0	0	0	0	1.4	0.5	0	0	0	0	0	0	0	0	0.6

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	0	148	6	154	**2**	**6**			**21**								
17:30	0	171	2	173	0	2	4	6	13	**109**	0	122	0	0	0	0	301
17:45	0	**181**	6	**187**	1	6	6	13	16	109	0	**125**	0	0	0	0	**325**
18:00	0	159	**7**	166	2	5	**9**	**16**	20	83	0	103	0	0	0	0	285
Total Volume	0	659	21	680	5	19	24	48	70	395	0	465	0	0	0	0	1193
% App. Total	0	96.9	3.1		10.4	39.6	50		15.1	84.9	0		0	0	0		
PHF	.000	.910	.750	.909	.625	.792	.667	.750	.833	.906	.000	.930	.000	.000	.000	.000	.918

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010

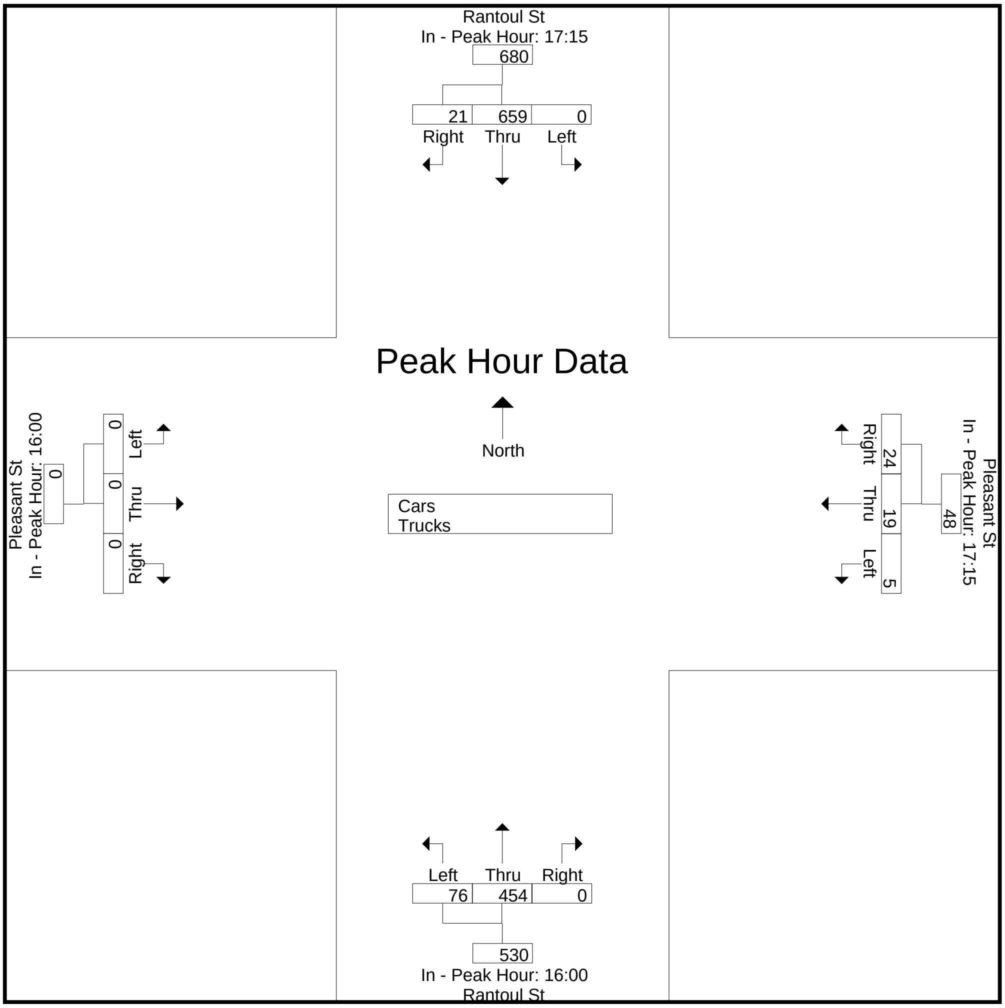


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	17:15				17:15				16:00				16:00			
+0 mins.	0	148	6	154	**2**	**6**	5	13	19	110	0	129	0	0	0	0
+15 mins.	0	171	2	173	0	2	4	6	**21**	107	0	128	0	0	0	0
+30 mins.	0	**181**	6	**187**	1	6	6	13	18	98	0	116	0	0	0	0
+45 mins.	0	159	**7**	166	2	5	**9**	**16**	18	**139**	0	**157**	0	0	0	0
Total Volume	0	659	21	680	5	19	24	48	76	454	0	530	0	0	0	0
% App. Total	0	96.9	3.1		10.4	39.6	50		14.3	85.7	0		0	0	0	
PHF	.000	.910	.750	.909	.625	.792	.667	.750	.905	.817	.000	.844	.000	.000	.000	.000

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	130	3	0	4	7	5	0	18	108	0	0	0	0	0	0	0	275	275
16:15	0	115	5	0	0	7	2	0	21	106	0	0	0	0	0	2	2	256	258
16:30	0	144	11	1	1	3	1	0	17	97	0	0	0	0	0	0	1	274	275
16:45	0	108	3	1	2	1	3	0	18	139	0	0	0	0	0	3	4	274	278
Total	0	497	22	2	7	18	11	0	74	450	0	0	0	0	0	5	7	1079	1086
17:00	0	128	5	0	1	5	1	0	15	110	0	0	0	0	0	0	0	265	265
17:15	0	147	6	0	2	6	5	0	21	94	0	0	0	0	0	0	0	281	281
17:30	0	171	2	0	0	2	4	0	13	109	0	0	0	0	0	2	2	301	303
17:45	0	181	6	0	1	6	6	0	16	109	0	0	0	0	0	0	0	325	325
Total	0	627	19	0	4	19	16	0	65	422	0	0	0	0	0	2	2	1172	1174
18:00	0	159	7	0	2	5	9	0	20	83	0	0	0	0	0	0	0	285	285
18:15	0	148	4	0	1	2	0	1	15	99	0	0	0	0	0	0	1	269	270
18:30	0	130	4	3	1	4	6	0	14	75	1	1	0	0	0	0	4	235	239
18:45	0	124	1	0	4	5	4	0	17	97	0	0	0	0	0	0	0	252	252
Total	0	561	16	3	8	16	19	1	66	354	1	1	0	0	0	0	5	1041	1046
Grand Total	0	1685	57	5	19	53	46	1	205	1226	1	1	0	0	0	7	14	3292	3306
Apprch %	0	96.7	3.3		16.1	44.9	39		14.3	85.6	0.1		0	0	0				
Total %	0	51.2	1.7		0.6	1.6	1.4		6.2	37.2	0		0	0	0		0.4	99.6	

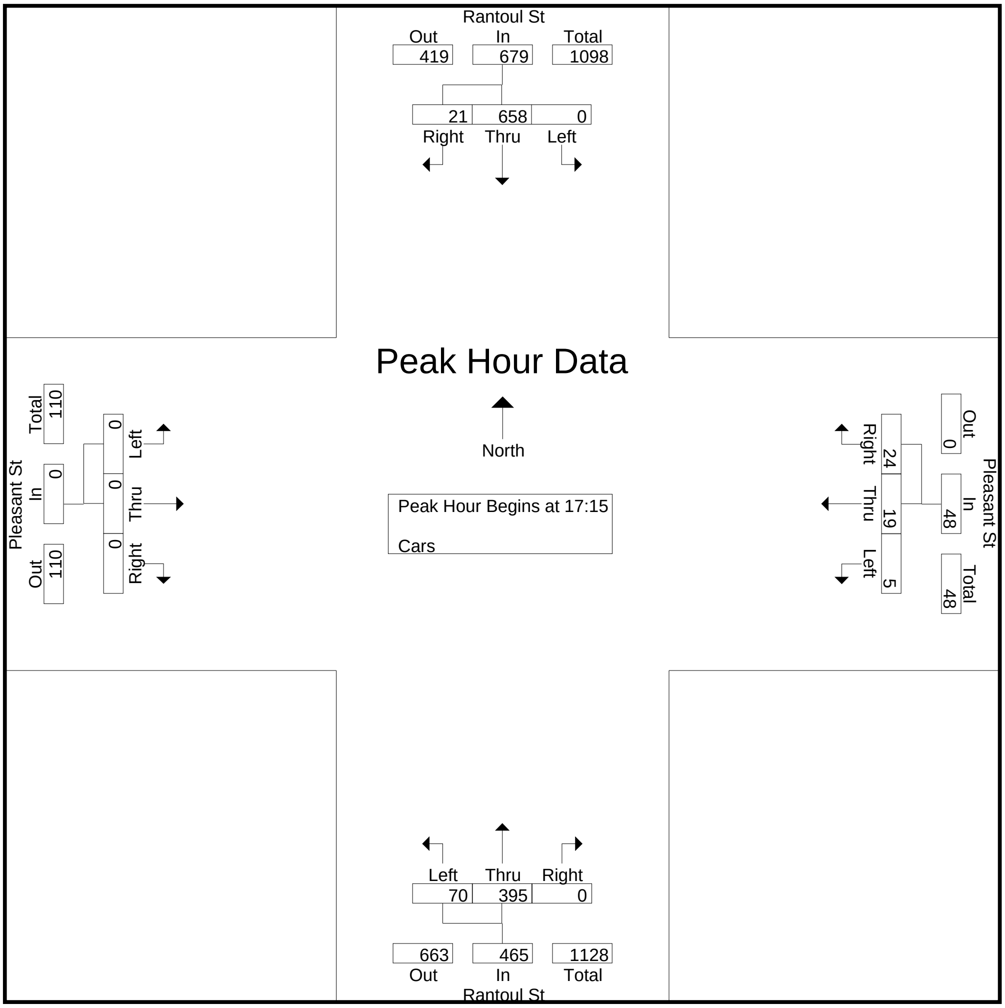
	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	0	147	6	153	**2**	**6**			**21**								
17:30	0	171	2	173	0	2	4	6	13	**109**	0	122	0	0	0	0	301
17:45	0	**181**	6	**187**	1	6	6	13	16	109	0	**125**	0	0	0	0	**325**
18:00	0	159	**7**	166	2	5	**9**	**16**	20	83	0	103	0	0	0	0	285
Total Volume	0	658	21	679	5	19	24	48	70	395	0	465	0	0	0	0	1192
% App. Total	0	96.9	3.1		10.4	39.6	50		15.1	84.9	0		0	0	0		
PHF	.000	.909	.750	.908	.625	.792	.667	.750	.833	.906	.000	.930	.000	.000	.000	.000	.917

Accurate Counts

978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 2

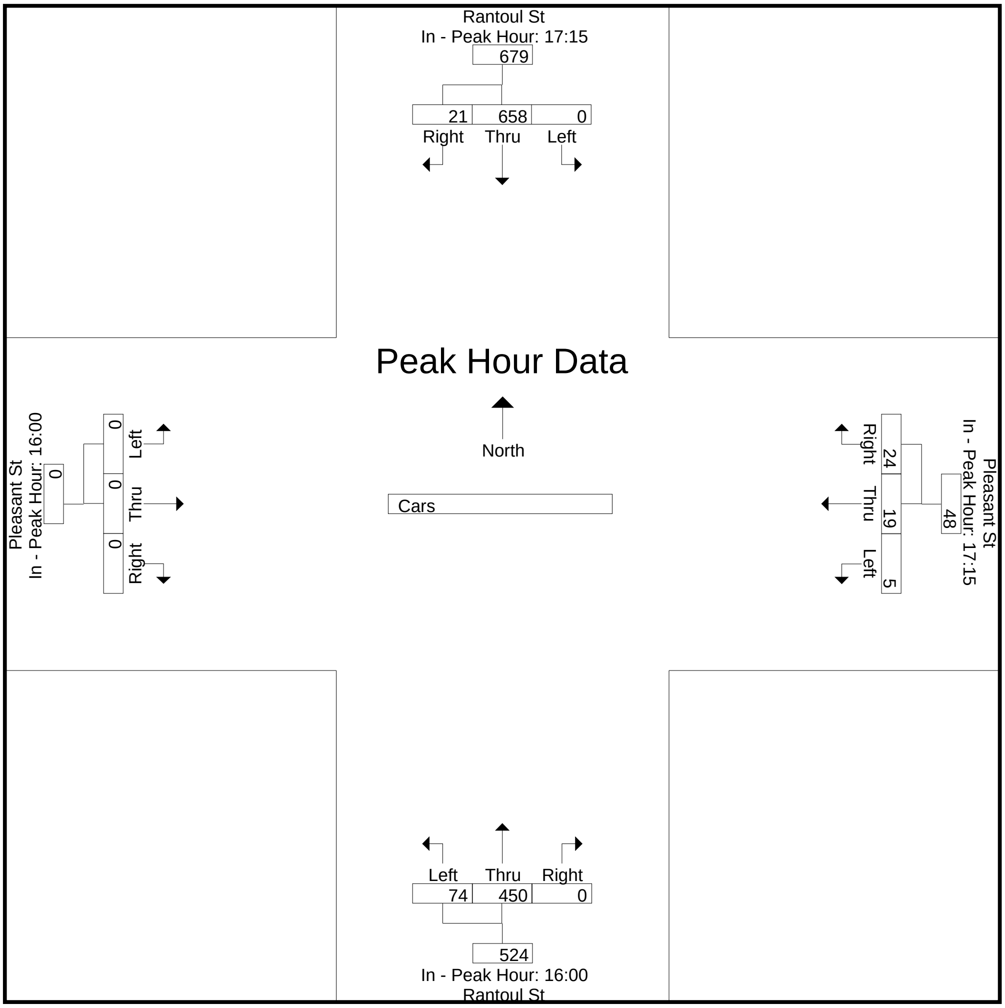


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	17:15				17:15				16:00				16:00			
+0 mins.	0	147	6	153	**2**	**6**	5	13	18	108	0	126	0	0	0	0
+15 mins.	0	171	2	173	0	2	4	6	**21**	106	0	127	0	0	0	0
+30 mins.	0	**181**	6	**187**	1	6	6	13	17	97	0	114	0	0	0	0
+45 mins.	0	159	**7**	166	2	5	**9**	**16**	18	**139**	0	**157**	0	0	0	0
Total Volume	0	658	21	679	5	19	24	48	74	450	0	524	0	0	0	0
% App. Total	0	96.9	3.1		10.4	39.6	50		14.1	85.9	0		0	0	0	
PHF	.000	.909	.750	.908	.625	.792	.667	.750	.881	.809	.000	.834	.000	.000	.000	.000

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010



Accurate Counts
978-664-2565

N/S Street : Rantoul Street	File Name : 14850002
E/W Street: Pleasant Street	Site Code : 14850002
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

Groups Printed- Trucks

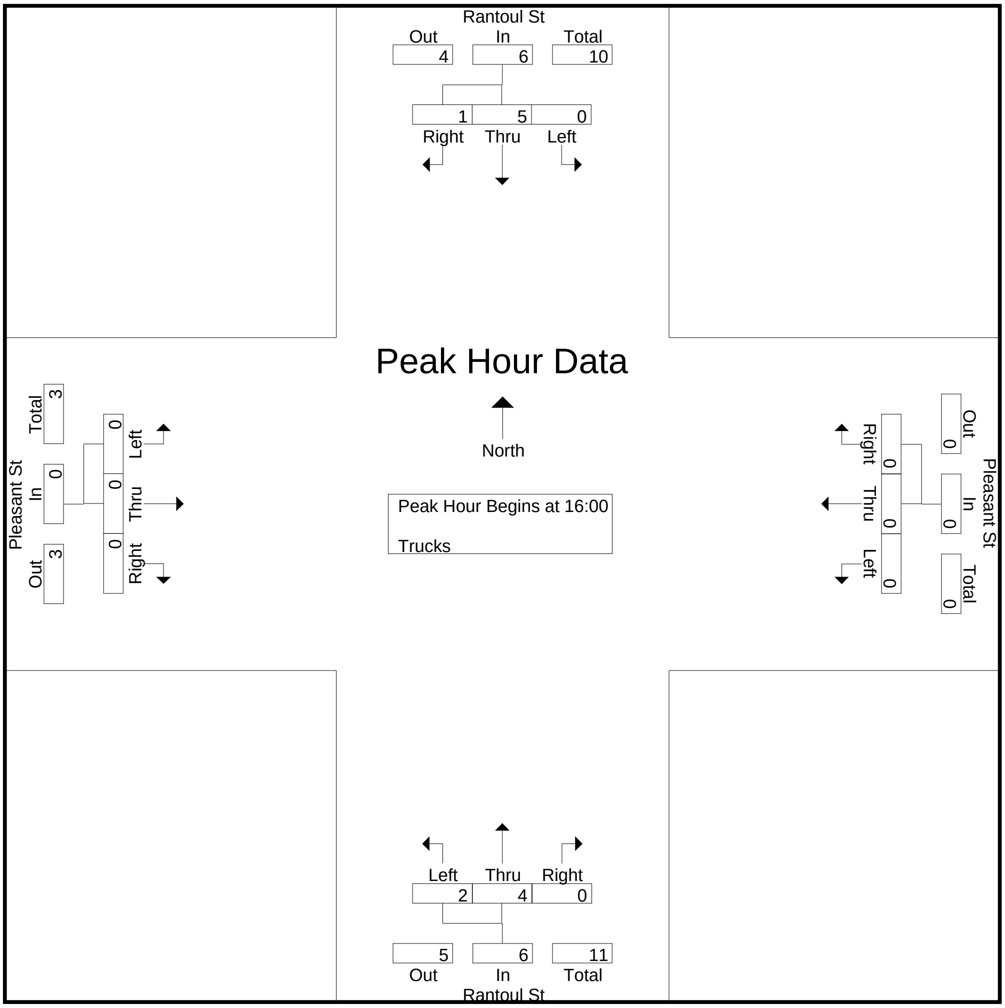
	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3	3
16:15	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
16:30	0	3	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	6	6
16:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	5	1	0	0	0	0	0	2	4	0	0	0	0	0	0	0	12	12
17:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2
17:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	3
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
18:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
18:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Total	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	4
Grand Total	0	9	1	0	0	0	0	0	3	6	0	0	0	0	0	0	0	19	19
Apprch %	0	90	10		0	0	0		33.3	66.7	0		0	0	0				
Total %	0	47.4	5.3		0	0	0		15.8	31.6	0		0	0	0		0	100	

	Rantoul St From North				**Pleasant St From East**				**Rantoul St From South**				**Pleasant St From West**				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	0	0	0	0	0	0	0	0	**1**	**2**		**3**					
16:15	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
16:30	0	**3**	**1**	**4**	0	0	0	0	1	1	0	2	0	0	0	0	**6**
16:45	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	5	1	6	0	0	0	0	2	4	0	6	0	0	0	0	12
% App. Total	0	83.3	16.7		0	0	0		33.3	66.7	0		0	0	0		
PHF	.000	.417	.250	.375	.000	.000	.000	.000	.500	.500	.000	.500	.000	.000	.000	.000	.500

Accurate Counts
978-664-2565

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 2

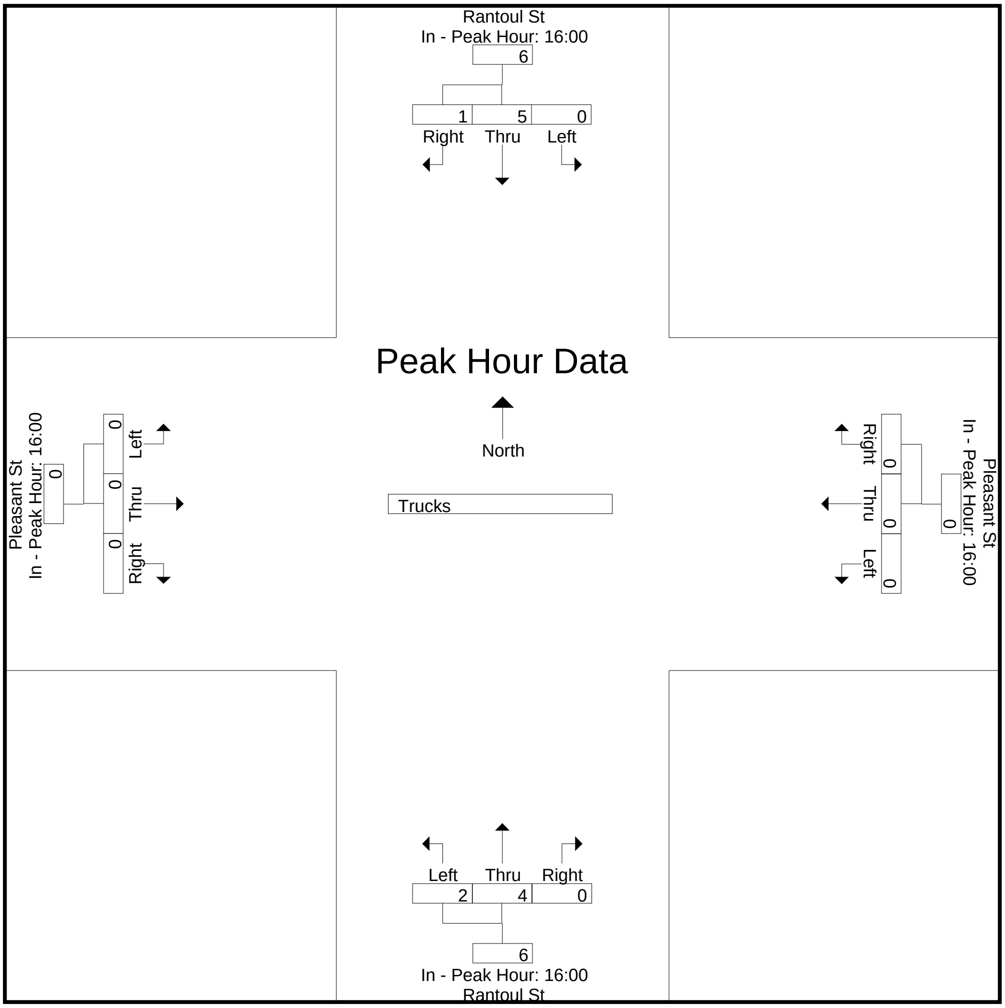


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				16:00				16:00				16:00			
+0 mins.	0	0	0	0	0	0	0	0	**1**	**2**	0	**3**	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	**3**	**1**	**4**	0	0	0	0	1	1	0	2	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	5	1	6	0	0	0	0	2	4	0	6	0	0	0	0
% App. Total	0	83.3	16.7		0	0	0		33.3	66.7	0		0	0	0	
PHF	.000	.417	.250	.375	.000	.000	.000	.000	.500	.500	.000	.500	.000	.000	.000	.000

N/S Street : Rantoul Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850002
Site Code : 14850002
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Park St / Court St	File Name : 14850003
E/W Street: Pleasant Street	Site Code : 14850003
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

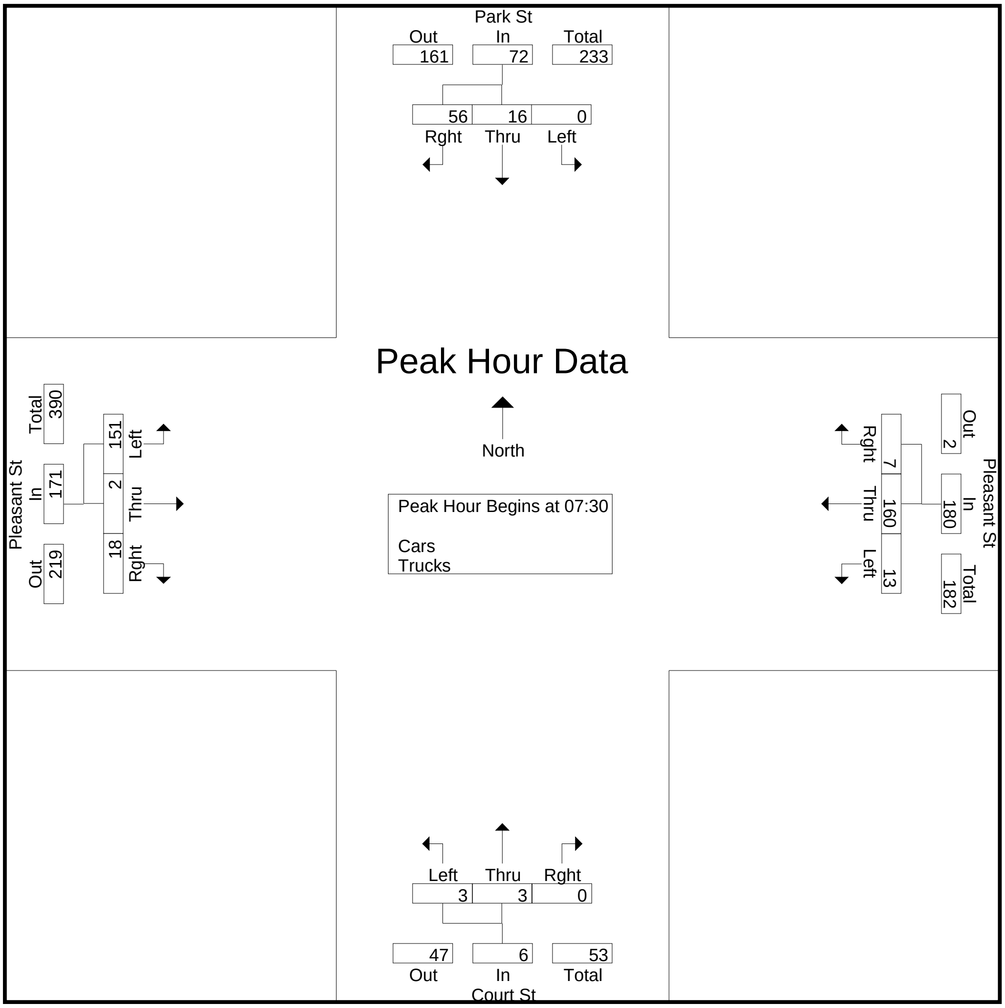
Groups Printed- Cars - Trucks

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	2	11	1	1	16	0	0	1	0	0	0	6	0	1	0	1	38	39
06:15	0	1	11	0	1	27	0	0	3	0	0	0	8	0	0	0	0	51	51
06:30	0	0	7	0	2	27	0	2	0	0	0	0	10	1	3	0	2	50	52
06:45	0	0	14	2	3	37	0	4	1	1	0	0	10	0	3	0	6	69	75
Total	0	3	43	3	7	107	0	6	5	1	0	0	34	1	7	0	9	208	217
07:00	0	3	6	2	1	44	1	4	2	0	0	0	17	1	5	0	6	80	86
07:15	0	1	14	14	3	38	1	18	1	0	0	0	20	0	9	0	32	87	119
07:30	0	2	10	1	2	54	0	10	1	0	0	0	20	0	3	0	11	92	103
07:45	0	6	12	5	6	31	1	12	2	1	0	1	45	1	6	0	18	111	129
Total	0	12	42	22	12	167	3	44	6	1	0	1	102	2	23	0	67	370	437
08:00	0	6	19	9	2	33	3	21	0	1	0	0	46	1	7	0	30	118	148
08:15	0	2	15	3	3	42	3	11	0	1	0	0	40	0	2	0	14	108	122
08:30	0	0	21	0	0	35	2	1	0	0	0	1	32	0	0	0	2	90	92
08:45	0	1	12	2	2	33	1	2	1	1	0	0	34	0	1	0	4	86	90
Total	0	9	67	14	7	143	9	35	1	3	0	1	152	1	10	0	50	402	452
Grand Total	0	24	152	39	26	417	12	85	12	5	0	2	288	4	40	0	126	980	1106
Apprch %	0	13.6	86.4		5.7	91.6	2.6		70.6	29.4	0		86.7	1.2	12				
Total %	0	2.4	15.5		2.7	42.6	1.2		1.2	0.5	0		29.4	0.4	4.1		11.4	88.6	
Cars	0	24	148		26	415	11		12	5	0		279	4	40		0	0	1090
% Cars	0	100	97.4	100	100	99.5	91.7	100	100	100	0	100	96.9	100	100	0	0	0	98.6
Trucks	0	0	4		0	2	1		0	0	0		9	0	0		0	0	16
% Trucks	0	0	2.6	0	0	0.5	8.3	0	0	0	0	0	3.1	0	0	0	0	0	1.4

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	2	10	12	2	**54**	0	**56**	1	0	0	1	20	0	3	23	92
07:45	0	**6**	12	18	**6**	31	1	38	**2**	**1**	0	**3**	45	**1**	6	52	111
08:00	0	6	**19**	**25**	2	33	**3**	38	0	1	0	1	**46**	1	**7**	**54**	**118**
08:15	0	2	15	17	3	42	3	48	0	1	0	1	40	0	2	42	108
Total Volume	0	16	56	72	13	160	7	180	3	3	0	6	151	2	18	171	429
% App. Total	0	22.2	77.8		7.2	88.9	3.9		50	50	0		88.3	1.2	10.5		
PHF	.000	.667	.737	.720	.542	.741	.583	.804	.375	.750	.000	.500	.821	.500	.643	.792	.909

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010

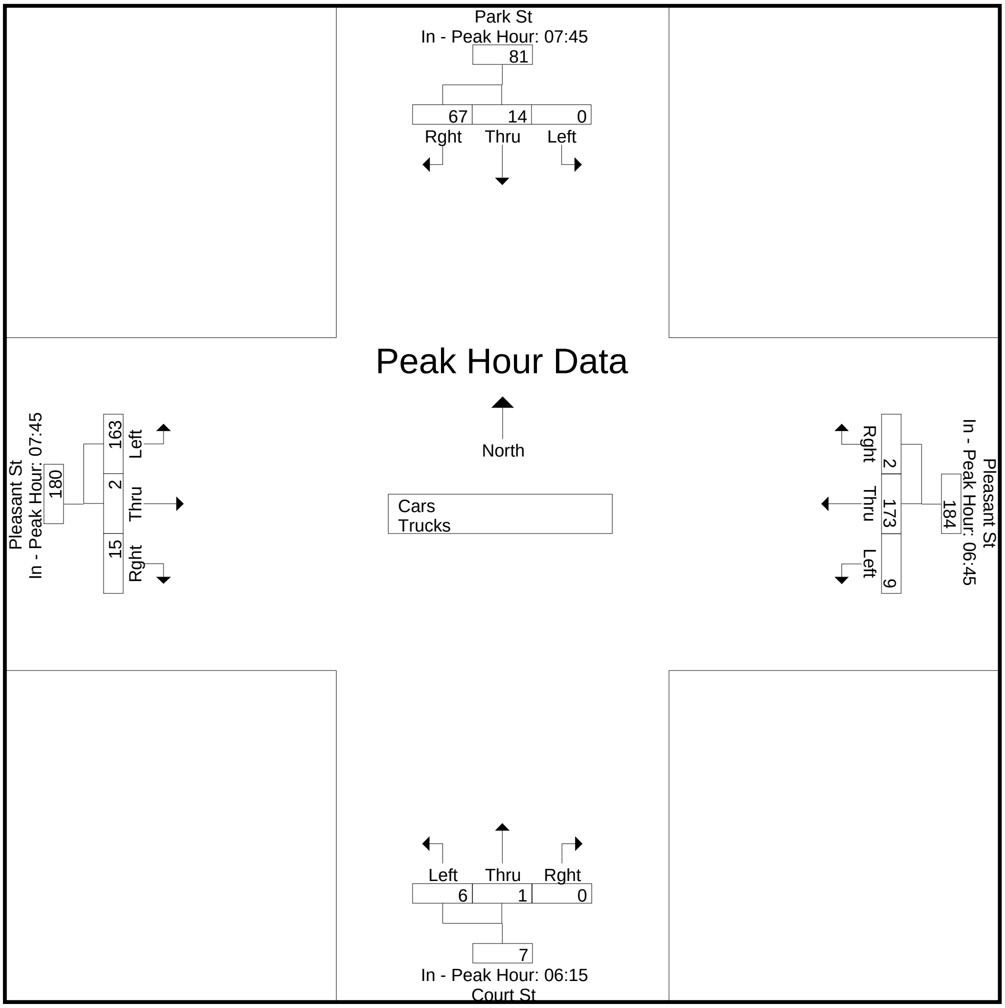


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:45				06:45				06:15				07:45			
+0 mins.	0	**6**	12	18	**3**	37	0	40	**3**	0	0	**3**	45	**1**	6	52
+15 mins.	0	6	19	**25**	1	44	**1**	46	0	0	0	0	**46**	1	**7**	**54**
+30 mins.	0	2	15	17	3	38	1	42	1	**1**	0	2	40	0	2	42
+45 mins.	0	0	**21**	21	2	**54**	0	**56**	2	0	0	2	32	0	0	32
Total Volume	0	14	67	81	9	173	2	184	6	1	0	7	163	2	15	180
% App. Total	0	17.3	82.7		4.9	94	1.1		85.7	14.3	0		90.6	1.1	8.3	
PHF	.000	.583	.798	.810	.750	.801	.500	.821	.500	.250	.000	.583	.886	.500	.536	.833

N/S Street : Park St / Court St	File Name : 14850003
E/W Street: Pleasant Street	Site Code : 14850003
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 3



Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

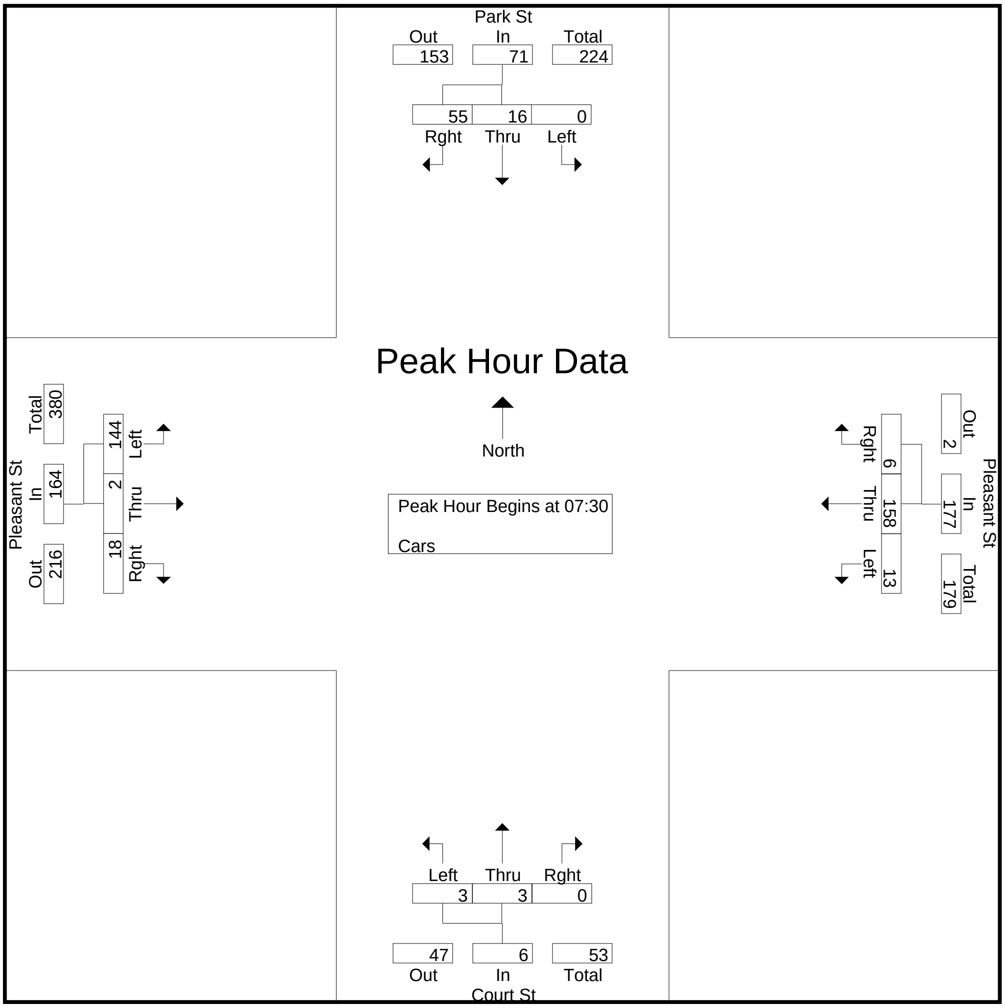
	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	2	11	1	1	16	0	0	1	0	0	0	6	0	1	0	1	38	39
06:15	0	1	11	0	1	27	0	0	3	0	0	0	8	0	0	0	0	51	51
06:30	0	0	7	0	2	27	0	2	0	0	0	0	10	1	3	0	2	50	52
06:45	0	0	14	2	3	37	0	4	1	1	0	0	10	0	3	0	6	69	75
Total	0	3	43	3	7	107	0	6	5	1	0	0	34	1	7	0	9	208	217
07:00	0	3	6	2	1	44	1	4	2	0	0	0	17	1	5	0	6	80	86
07:15	0	1	13	14	3	38	1	18	1	0	0	0	20	0	9	0	32	86	118
07:30	0	2	10	1	2	54	0	10	1	0	0	0	20	0	3	0	11	92	103
07:45	0	6	12	5	6	31	0	12	2	1	0	1	44	1	6	0	18	109	127
Total	0	12	41	22	12	167	2	44	6	1	0	1	101	2	23	0	67	367	434
08:00	0	6	18	9	2	33	3	21	0	1	0	0	42	1	7	0	30	113	143
08:15	0	2	15	3	3	40	3	11	0	1	0	0	38	0	2	0	14	104	118
08:30	0	0	21	0	0	35	2	1	0	0	0	1	31	0	0	0	2	89	91
08:45	0	1	10	2	2	33	1	2	1	1	0	0	33	0	1	0	4	83	87
Total	0	9	64	14	7	141	9	35	1	3	0	1	144	1	10	0	50	389	439
Grand Total	0	24	148	39	26	415	11	85	12	5	0	2	279	4	40	0	126	964	1090
Apprch %	0	14	86		5.8	91.8	2.4		70.6	29.4	0		86.4	1.2	12.4				
Total %	0	2.5	15.4		2.7	43	1.1		1.2	0.5	0		28.9	0.4	4.1		11.6	88.4	

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	2	10	12	2	**54**	0	**56**	1	0	0	1	20	0	3	23	92
07:45	0	**6**	12	18	**6**	31	0	37	**2**	**1**	0	**3**	**44**	**1**	6	**51**	109
08:00	0	6	**18**	**24**	2	33	**3**	38	0	1	0	1	42	1	**7**	50	**113**
08:15	0	2	15	17	3	40	3	46	0	1	0	1	38	0	2	40	104
Total Volume	0	16	55	71	13	158	6	177	3	3	0	6	144	2	18	164	418
% App. Total	0	22.5	77.5		7.3	89.3	3.4		50	50	0		87.8	1.2	11		
PHF	.000	.667	.764	.740	.542	.731	.500	.790	.375	.750	.000	.500	.818	.500	.643	.804	.925

Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

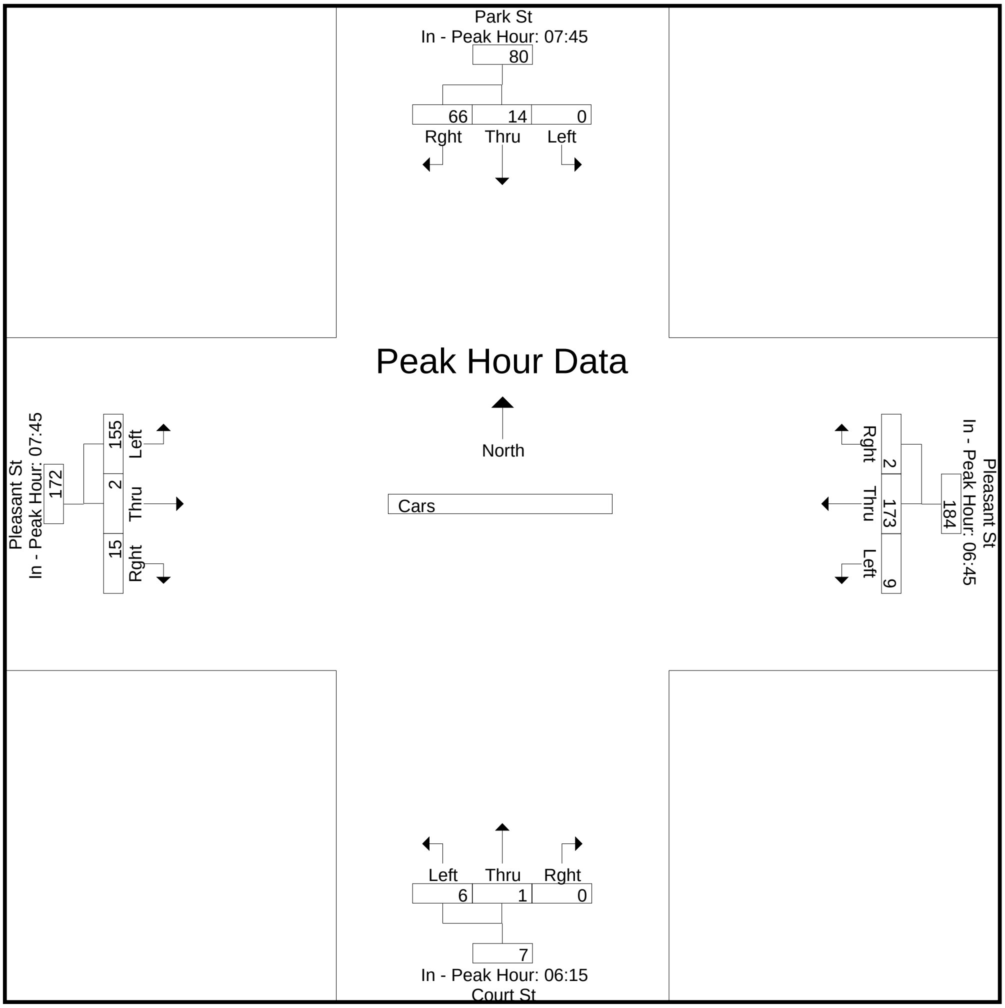
	07:45				06:45				06:15				07:45			
+0 mins.	0	**6**	12	18	**3**	37	0	40	**3**	0	0	**3**	**44**	**1**	6	**51**
+15 mins.	0	6	18	**24**	1	44	**1**	46	0	0	0	0	42	1	**7**	50
+30 mins.	0	2	15	17	3	38	1	42	1	**1**	0	2	38	0	2	40
+45 mins.	0	0	**21**	21	2	**54**	0	**56**	2	0	0	2	31	0	0	31
Total Volume	0	14	66	80	9	173	2	184	6	1	0	7	155	2	15	172
% App. Total	0	17.5	82.5		4.9	94	1.1		85.7	14.3	0		90.1	1.2	8.7	
PHF	.000	.583	.786	.833	.750	.801	.500	.821	.500	.250	.000	.583	.881	.500	.536	.843

Accurate Counts

978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 1

Groups Printed- Trucks

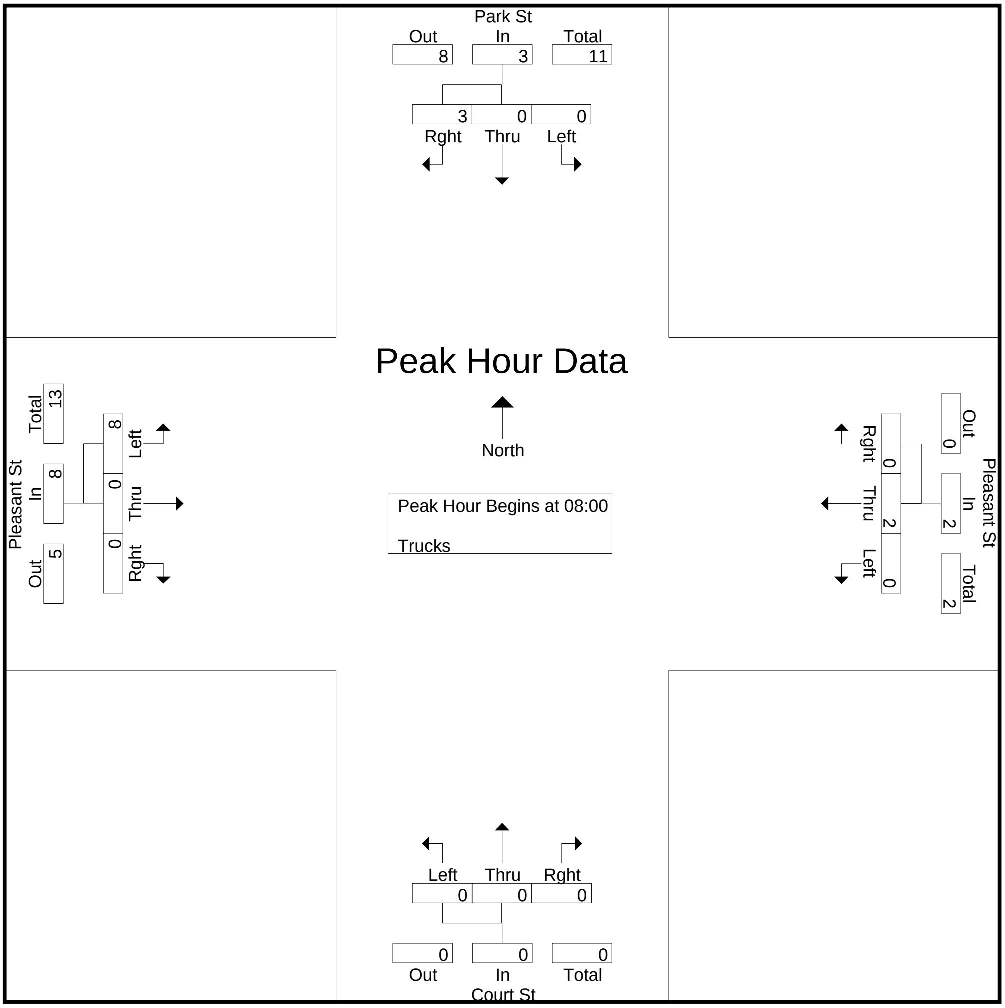
	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2	2
Total	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	3	3
08:00	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	5	5
08:15	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	4	4
08:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
08:45	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	3
Total	0	0	3	0	0	2	0	0	0	0	0	0	8	0	0	0	0	13	13
Grand Total	0	0	4	0	0	2	1	0	0	0	0	0	9	0	0	0	0	16	16
Apprch %	0	0	100		0	66.7	33.3		0	0	0		100	0	0				
Total %	0	0	25		0	12.5	6.2		0	0	0		56.2	0	0		0	100	

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	1	1	0	0	0	0	0	0	0	0	**4**	0	0	**4**	**5**
08:15	0	0	0	0	0	**2**	0	**2**	0	0	0	0	2	0	0	2	4
08:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:45	0	0	**2**	**2**	0	0	0	0	0	0	0	0	1	0	0	1	3
Total Volume	0	0	3	3	0	2	0	2	0	0	0	0	8	0	0	8	13
% App. Total	0	0	100		0	100	0		0	0	0		100	0	0		
PHF	.000	.000	.375	.375	.000	.250	.000	.250	.000	.000	.000	.000	.500	.000	.000	.500	.650

Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 2

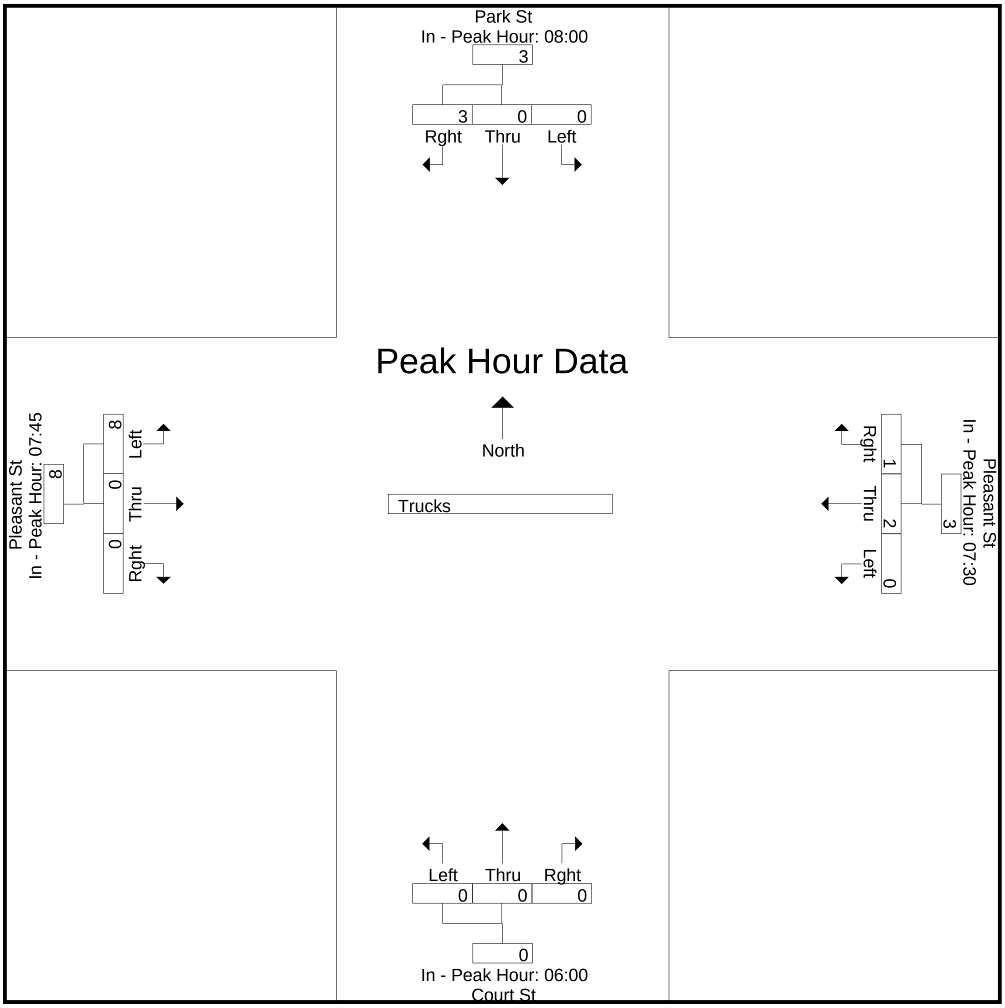


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00				07:30				06:00				07:45			
+0 mins.	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1
+15 mins.	0	0	0	0	0	0	**1**	1	0	0	0	0	**4**	0	0	**4**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
+45 mins.	0	0	**2**	**2**	0	**2**	0	**2**	0	0	0	0	1	0	0	1
Total Volume	0	0	3	3	0	2	1	3	0	0	0	0	8	0	0	8
% App. Total	0	0	100		0	66.7	33.3		0	0	0		100	0	0	
PHF	.000	.000	.375	.375	.000	.250	.250	.375	.000	.000	.000	.000	.500	.000	.000	.500

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010



Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars - Trucks

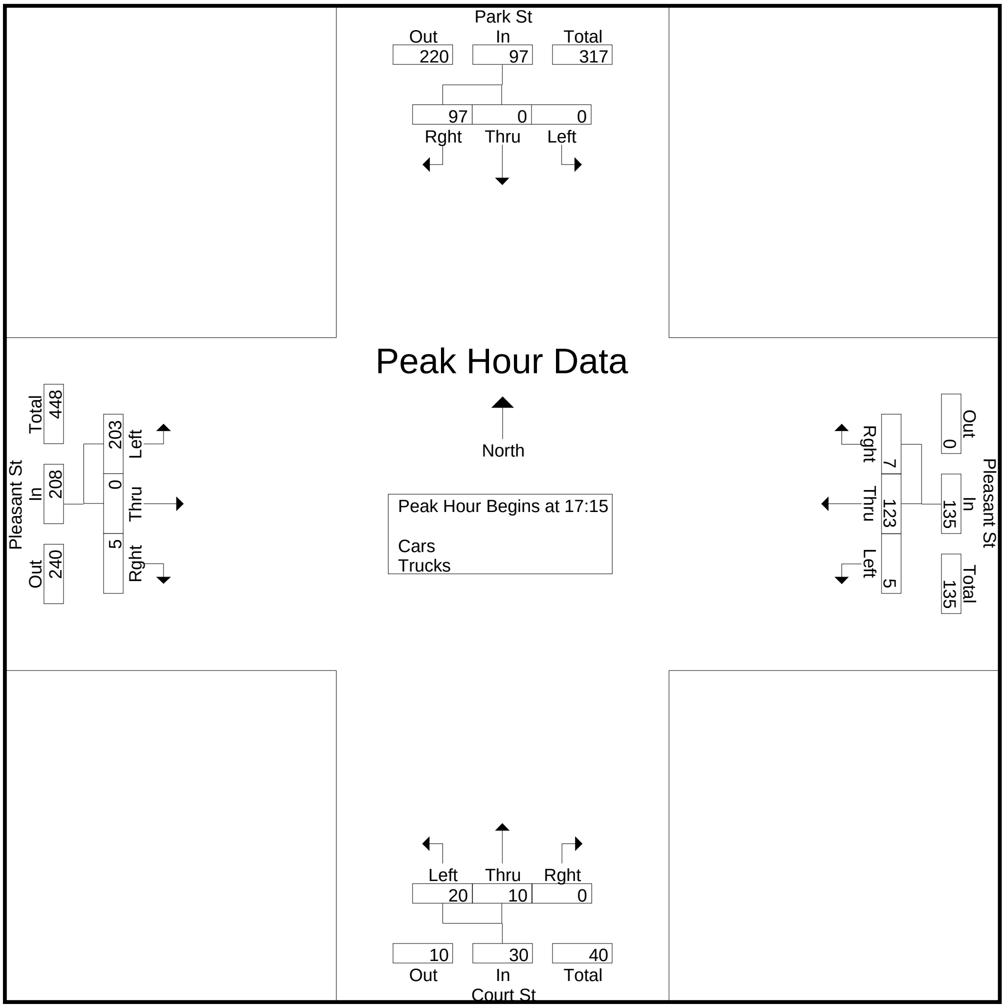
	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	0	11	1	0	28	3	4	1	3	0	0	48	0	1	0	5	95	100
16:15	0	0	26	1	0	34	1	4	2	0	0	0	51	0	3	0	5	117	122
16:30	0	0	31	0	1	31	1	1	0	0	0	0	44	1	0	0	1	109	110
16:45	0	0	30	2	1	33	1	3	1	3	0	0	36	0	0	0	5	105	110
Total	0	0	98	4	2	126	6	12	4	6	0	0	179	1	4	0	16	426	442
17:00	0	0	27	1	0	32	3	0	0	0	0	0	44	0	0	0	1	106	107
17:15	0	0	32	2	1	34	0	6	3	2	0	0	61	0	0	0	8	133	141
17:30	0	0	18	0	2	19	2	7	6	1	0	0	48	0	0	0	7	96	103
17:45	0	0	23	0	0	42	2	10	10	3	0	0	46	0	2	2	12	128	140
Total	0	0	100	3	3	127	7	23	19	6	0	0	199	0	2	2	28	463	491
18:00	0	0	24	1	2	28	3	5	1	4	0	2	48	0	3	0	8	113	121
18:15	0	0	22	0	0	33	4	19	4	9	0	0	53	0	0	0	19	125	144
18:30	0	0	16	0	0	32	1	1	2	4	0	2	40	0	2	0	3	97	100
18:45	0	0	12	1	1	25	0	3	6	3	0	0	35	0	0	0	4	82	86
Total	0	0	74	2	3	118	8	28	13	20	0	4	176	0	5	0	34	417	451
Grand Total	0	0	272	9	8	371	21	63	36	32	0	4	554	1	11	2	78	1306	1384
Apprch %	0	0	100		2	92.8	5.2		52.9	47.1	0		97.9	0.2	1.9				
Total %	0	0	20.8		0.6	28.4	1.6		2.8	2.5	0		42.4	0.1	0.8		5.6	94.4	
Cars	0	0	269		8	367	21		36	32	0		553	1	11		0	0	1376
% Cars	0	0	98.9	100	100	98.9	100	100	100	100	0	100	99.8	100	100	100	0	0	99.4
Trucks	0	0	3		0	4	0		0	0	0		1	0	0		0	0	8
% Trucks	0	0	1.1	0	0	1.1	0	0	0	0	0	0	0.2	0	0	0	0	0	0.6

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	0	0	**32**	**32**	1	34	0	35	3	2	0	5	**61**	0	0	**61**	**133**
17:30	0	0	18	18	**2**	19	2	23	6	1	0	7	48	0	0	48	96
17:45	0	0	23	23	0	**42**	2	**44**	**10**	3	0	**13**	46	0	2	48	128
18:00	0	0	24	24	2	28	**3**	33	1	**4**	0	5	48	0	**3**	51	113
Total Volume	0	0	97	97	5	123	7	135	20	10	0	30	203	0	5	208	470
% App. Total	0	0	100		3.7	91.1	5.2		66.7	33.3	0		97.6	0	2.4		
PHF	.000	.000	.758	.758	.625	.732	.583	.767	.500	.625	.000	.577	.832	.000	.417	.852	.883

Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 2



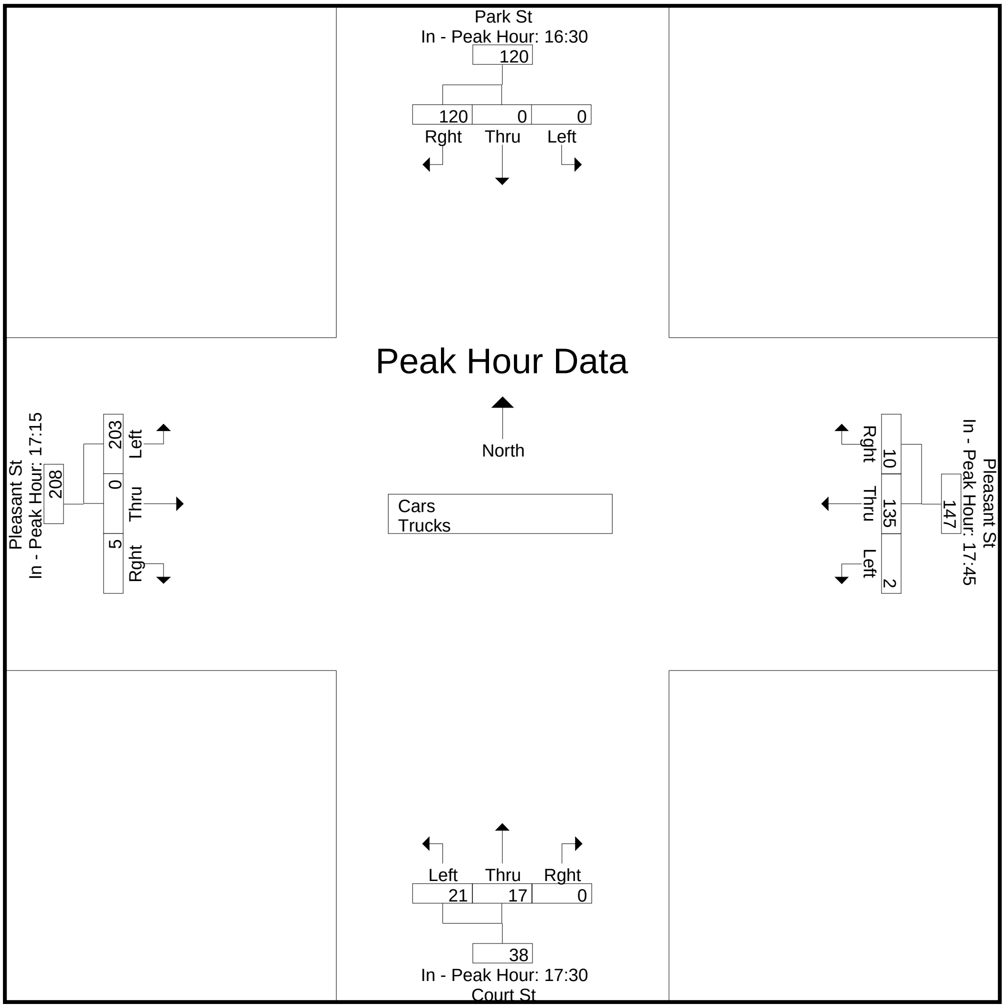
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	16:30				17:45				17:30				17:15			
+0 mins.	0	0	31	31	0	**42**	2	**44**	6	1	0	7	**61**	0	0	**61**
+15 mins.	0	0	30	30	**2**	28	3	33	**10**	3	0	**13**	48	0	0	48
+30 mins.	0	0	27	27	0	33	**4**	37	1	4	0	5	46	0	2	48
+45 mins.	0	0	**32**	**32**	0	32	1	33	4	**9**	0	13	48	0	**3**	51
Total Volume	0	0	120	120	2	135	10	147	21	17	0	38	203	0	5	208
% App. Total	0	0	100		1.4	91.8	6.8		55.3	44.7	0		97.6	0	2.4	
PHF	.000	.000	.938	.938	.250	.804	.625	.835	.525	.472	.000	.731	.832	.000	.417	.852

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010



Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

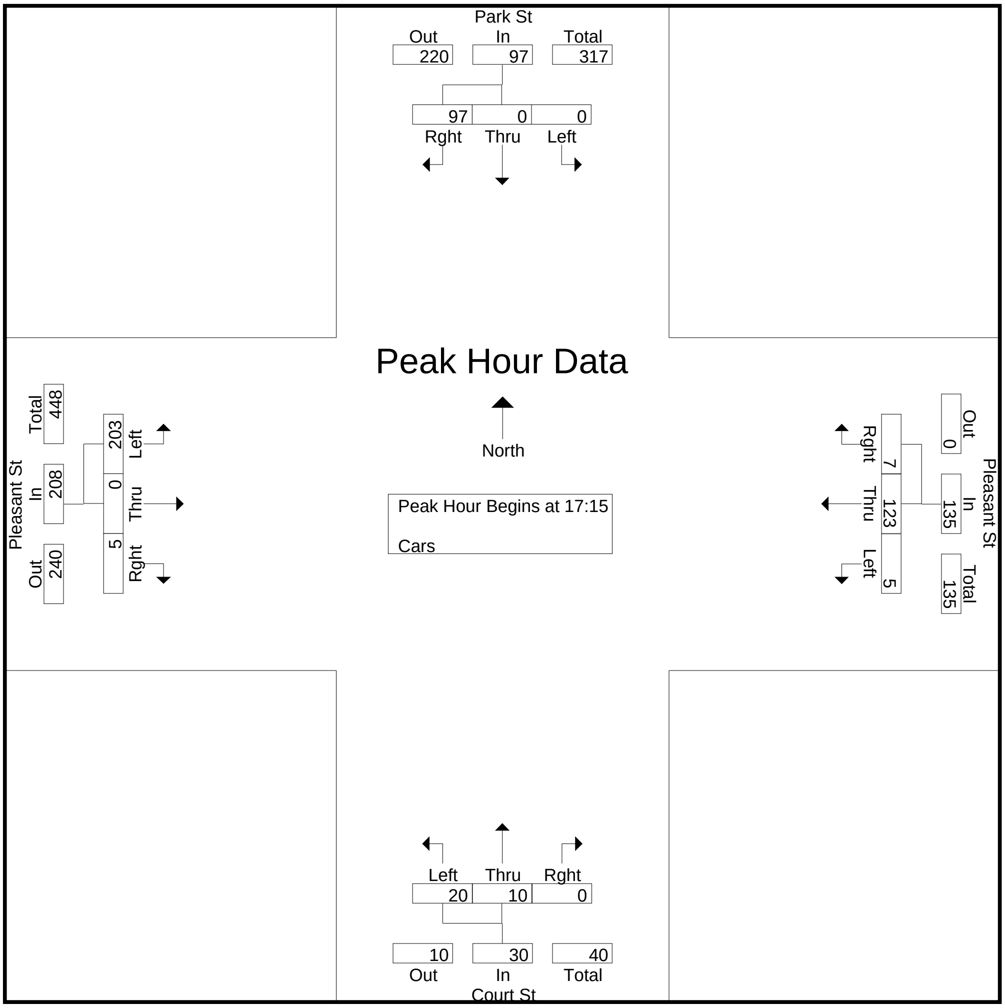
	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	0	11	1	0	27	3	4	1	3	0	0	47	0	1	0	5	93	98
16:15	0	0	26	1	0	34	1	4	2	0	0	0	51	0	3	0	5	117	122
16:30	0	0	29	0	1	29	1	1	0	0	0	0	44	1	0	0	1	105	106
16:45	0	0	29	2	1	33	1	3	1	3	0	0	36	0	0	0	5	104	109
Total	0	0	95	4	2	123	6	12	4	6	0	0	178	1	4	0	16	419	435
17:00	0	0	27	1	0	32	3	0	0	0	0	0	44	0	0	0	1	106	107
17:15	0	0	32	2	1	34	0	6	3	2	0	0	61	0	0	0	8	133	141
17:30	0	0	18	0	2	19	2	7	6	1	0	0	48	0	0	0	7	96	103
17:45	0	0	23	0	0	42	2	10	10	3	0	0	46	0	2	2	12	128	140
Total	0	0	100	3	3	127	7	23	19	6	0	0	199	0	2	2	28	463	491
18:00	0	0	24	1	2	28	3	5	1	4	0	2	48	0	3	0	8	113	121
18:15	0	0	22	0	0	33	4	19	4	9	0	0	53	0	0	0	19	125	144
18:30	0	0	16	0	0	32	1	1	2	4	0	2	40	0	2	0	3	97	100
18:45	0	0	12	1	1	24	0	3	6	3	0	0	35	0	0	0	4	81	85
Total	0	0	74	2	3	117	8	28	13	20	0	4	176	0	5	0	34	416	450
Grand Total	0	0	269	9	8	367	21	63	36	32	0	4	553	1	11	2	78	1298	1376
Apprch %	0	0	100		2	92.7	5.3		52.9	47.1	0		97.9	0.2	1.9				
Total %	0	0	20.7		0.6	28.3	1.6		2.8	2.5	0		42.6	0.1	0.8		5.7	94.3	

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	0	0	**32**	**32**	1	34	0	35	3	2	0	5	**61**	0	0	**61**	**133**
17:30	0	0	18	18	**2**	19	2	23	6	1	0	7	48	0	0	48	96
17:45	0	0	23	23	0	**42**	2	**44**	**10**	3	0	**13**	46	0	2	48	128
18:00	0	0	24	24	2	28	**3**	33	1	**4**	0	5	48	0	**3**	51	113
Total Volume	0	0	97	97	5	123	7	135	20	10	0	30	203	0	5	208	470
% App. Total	0	0	100		3.7	91.1	5.2		66.7	33.3	0		97.6	0	2.4		
PHF	.000	.000	.758	.758	.625	.732	.583	.767	.500	.625	.000	.577	.832	.000	.417	.852	.883

Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 2

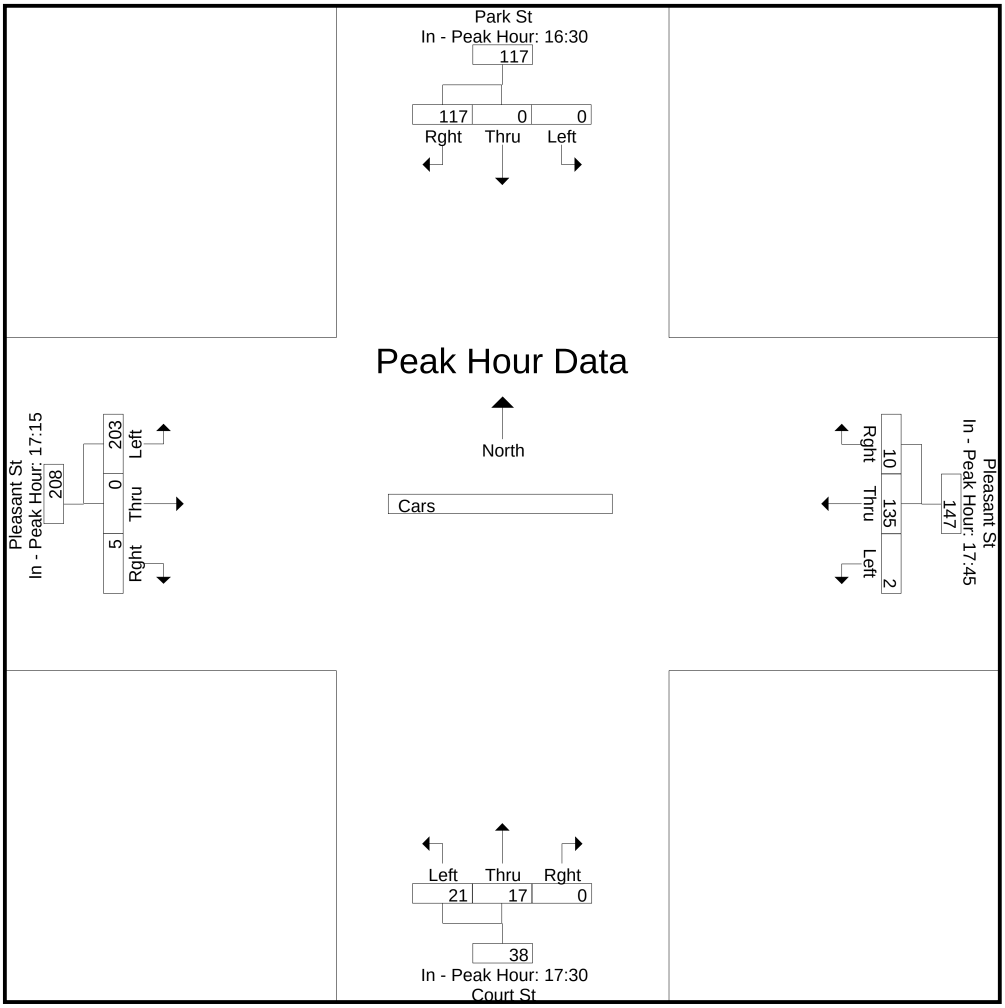


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:30				17:45				17:30				17:15			
+0 mins.	0	0	29	29	0	**42**	2	**44**	6	1	0	7	**61**	0	0	**61**
+15 mins.	0	0	29	29	**2**	28	3	33	**10**	3	0	**13**	48	0	0	48
+30 mins.	0	0	27	27	0	33	**4**	37	1	4	0	5	46	0	2	48
+45 mins.	0	0	**32**	**32**	0	32	1	33	4	**9**	0	13	48	0	**3**	51
Total Volume	0	0	117	117	2	135	10	147	21	17	0	38	203	0	5	208
% App. Total	0	0	100		1.4	91.8	6.8		55.3	44.7	0		97.6	0	2.4	
PHF	.000	.000	.914	.914	.250	.804	.625	.835	.525	.472	.000	.731	.832	.000	.417	.852

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 1

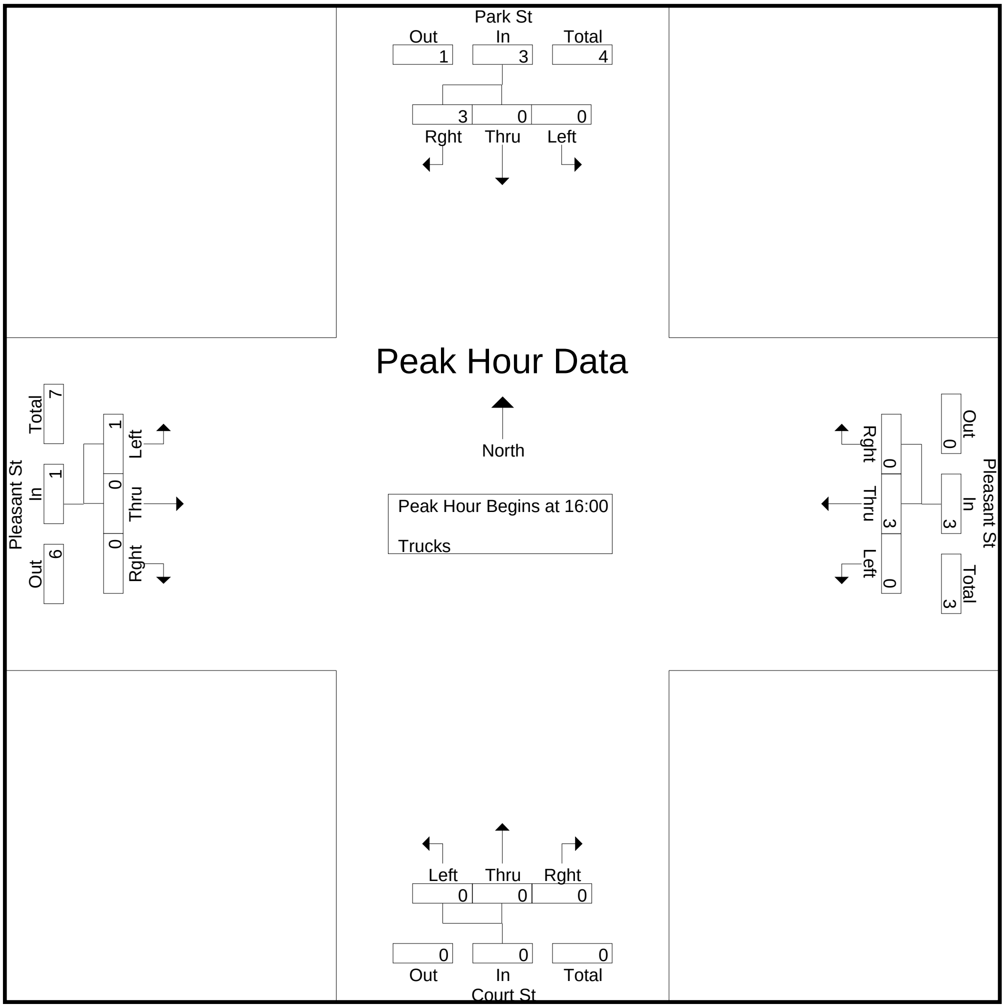
Groups Printed- Trucks

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	2
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	4
16:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	0	0	7	7
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	3	0	0	4	0	0	0	0	0	0	1	0	0	0	0	8	8
Apprch %	0	0	100		0	100	0		0	0	0		100	0	0				
Total %	0	0	37.5		0	50	0		0	0	0		12.5	0	0		0	100	

	Park St From North				Pleasant St From East				Court St From South				Pleasant St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	0	0	0	0	0	1	0	1	0	0	0	0	**1**	0	0	**1**	2
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	**2**	**2**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**4**
16:45	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	3	3	0	3	0	3	0	0	0	0	1	0	0	1	7
% App. Total	0	0	100		0	100	0		0	0	0		100	0	0		
PHF	.000	.000	.375	.375	.000	.375	.000	.375	.000	.000	.000	.000	.250	.000	.000	.250	.438

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 2



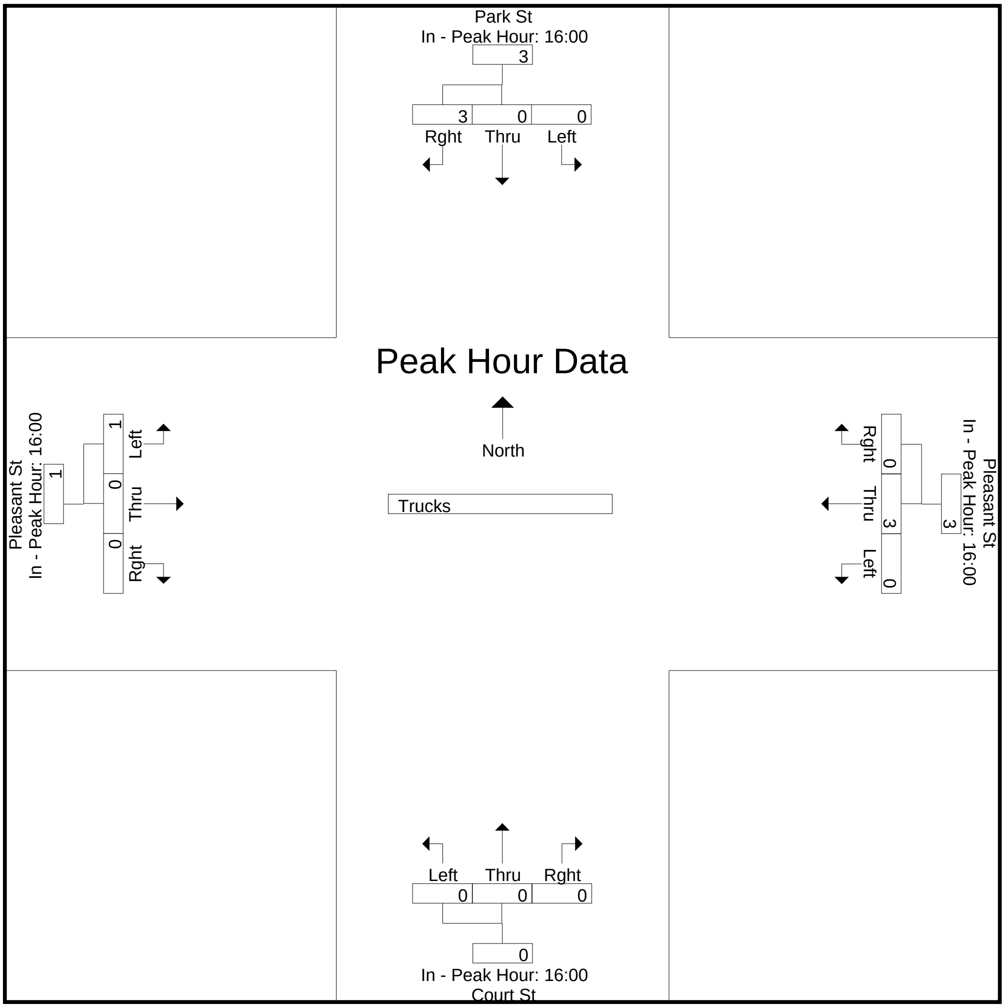
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				16:00				16:00				16:00			
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	**1**	0	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	**2**	**2**	0	**2**	0	**2**	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	3	3	0	3	0	3	0	0	0	0	1	0	0	1
% App. Total	0	0	100		0	100	0		0	0	0		100	0	0	
PHF	.000	.000	.375	.375	.000	.375	.000	.375	.000	.000	.000	.000	.250	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Park St / Court St
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850003
Site Code : 14850003
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars - Trucks

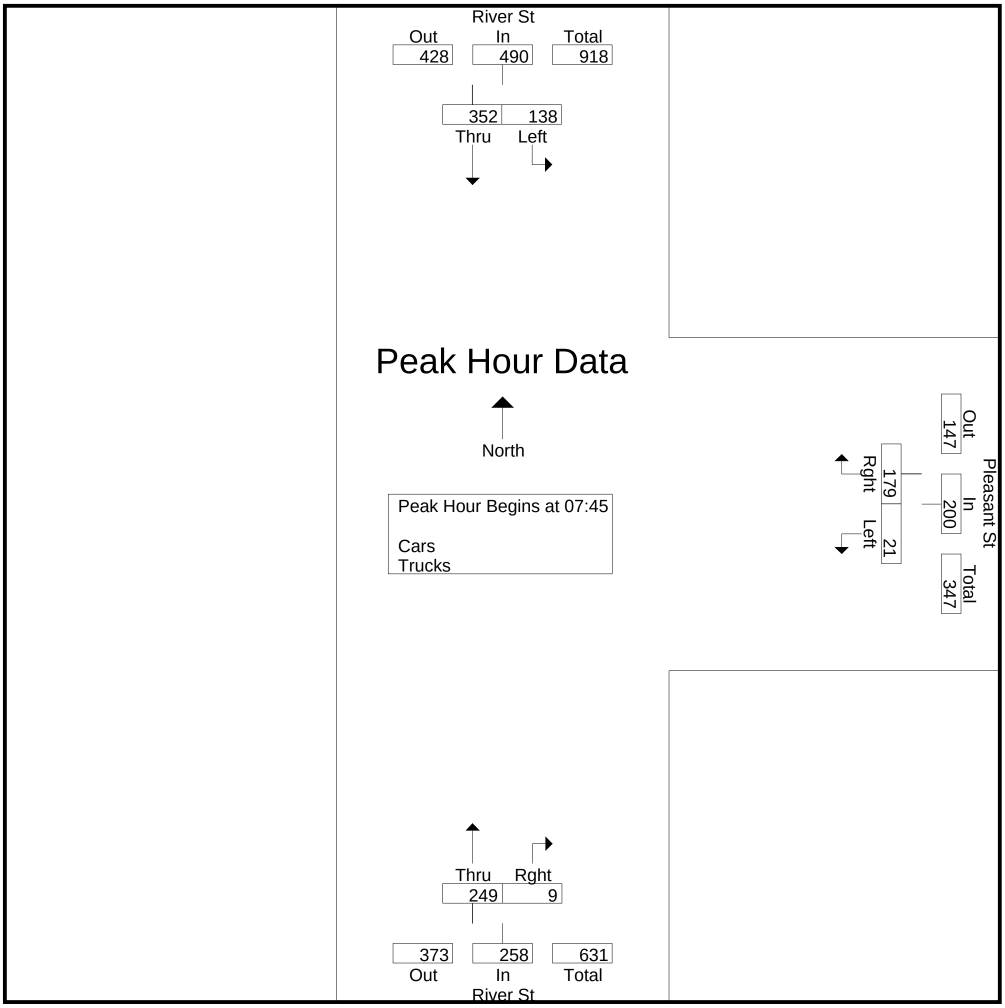
	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	5	21	0	1	31	0	16	1	0	0	75	75
06:15	12	28	0	3	35	1	28	0	0	1	106	107
06:30	11	59	0	1	43	0	24	0	0	0	138	138
06:45	14	68	0	3	37	12	26	0	0	12	148	160
Total	42	176	0	8	146	13	94	1	0	13	467	480
07:00	27	80	0	2	49	2	28	3	0	2	189	191
07:15	25	91	0	3	53	6	40	4	0	6	216	222
07:30	23	76	0	1	52	4	51	2	0	4	205	209
07:45	52	95	0	5	44	5	78	0	0	5	274	279
Total	127	342	0	11	198	17	197	9	0	17	884	901
08:00	21	100	0	3	47	5	58	1	0	5	230	235
08:15	32	82	0	7	38	2	64	5	0	2	228	230
08:30	33	75	0	6	50	1	49	3	0	1	216	217
08:45	29	93	0	3	39	0	64	1	0	0	229	229
Total	115	350	0	19	174	8	235	10	0	8	903	911
Grand Total	284	868	0	38	518	38	526	20	0	38	2254	2292
Apprch %	24.7	75.3		6.8	93.2		96.3	3.7				
Total %	12.6	38.5		1.7	23		23.3	0.9		1.7	98.3	
Cars	276	857		38	514		511	19		0	0	2253
% Cars	97.2	98.7	0	100	99.2	100	97.1	95	0	0	0	98.3
Trucks	8	11		0	4		15	1		0	0	39
% Trucks	2.8	1.3	0	0	0.8	0	2.9	5	0	0	0	1.7

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	**52**	95	**147**	5	44	49	**78**	0	**78**	**274**
08:00	21	**100**	121	3	47	50	58	1	59	230
08:15	32	82	114	**7**	38	45	64	**5**	69	228
08:30	33	75	108	6	**50**	**56**	49	3	52	216
Total Volume	138	352	490	21	179	200	249	9	258	948
% App. Total	28.2	71.8		10.5	89.5		96.5	3.5		
PHF	.663	.880	.833	.750	.895	.893	.798	.450	.827	.865

Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

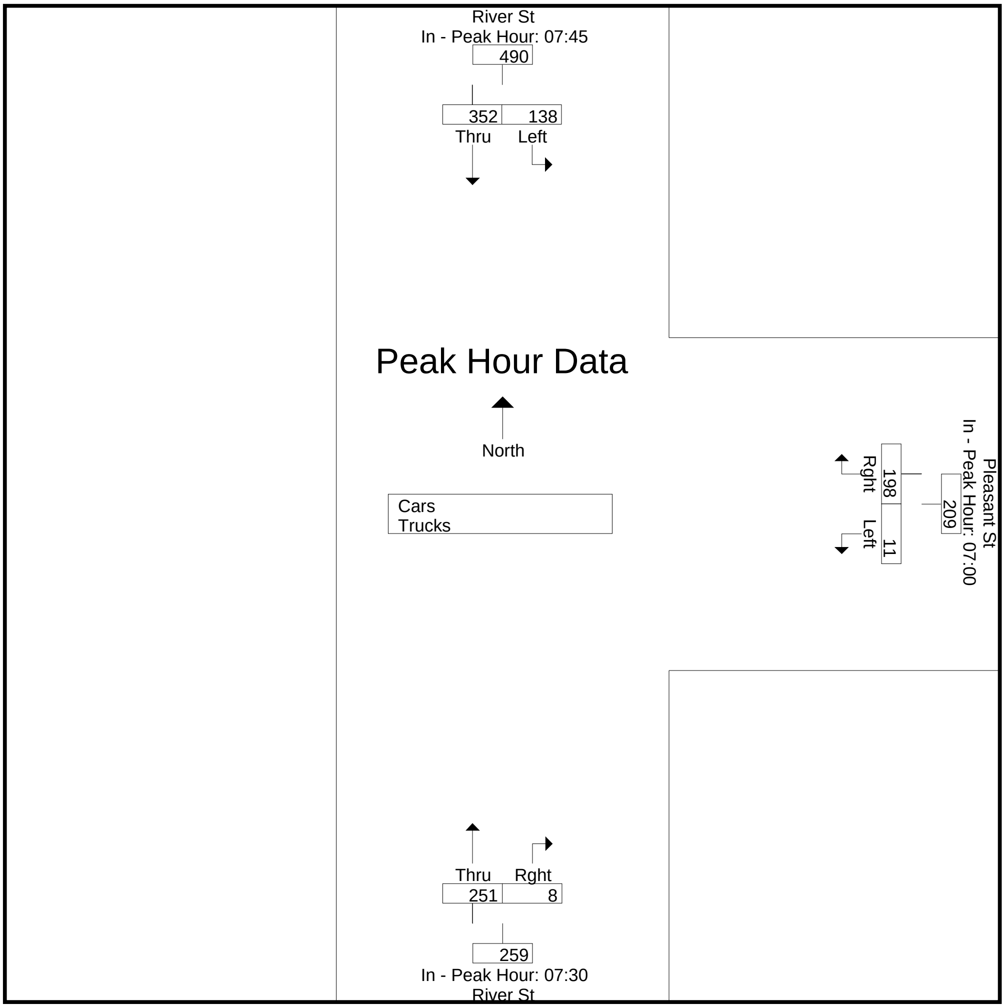
	07:45			07:00			07:30		
+0 mins.	**52**	95	**147**	2	49	51	51	2	53
+15 mins.	21	**100**	121	3	**53**	**56**	**78**	0	**78**
+30 mins.	32	82	114	1	52	53	58	1	59
+45 mins.	33	75	108	**5**	44	49	64	**5**	69
Total Volume	138	352	490	11	198	209	251	8	259
% App. Total	28.2	71.8		5.3	94.7		96.9	3.1	
PHF	.663	.880	.833	.550	.934	.933	.804	.400	.830

Accurate Counts

978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

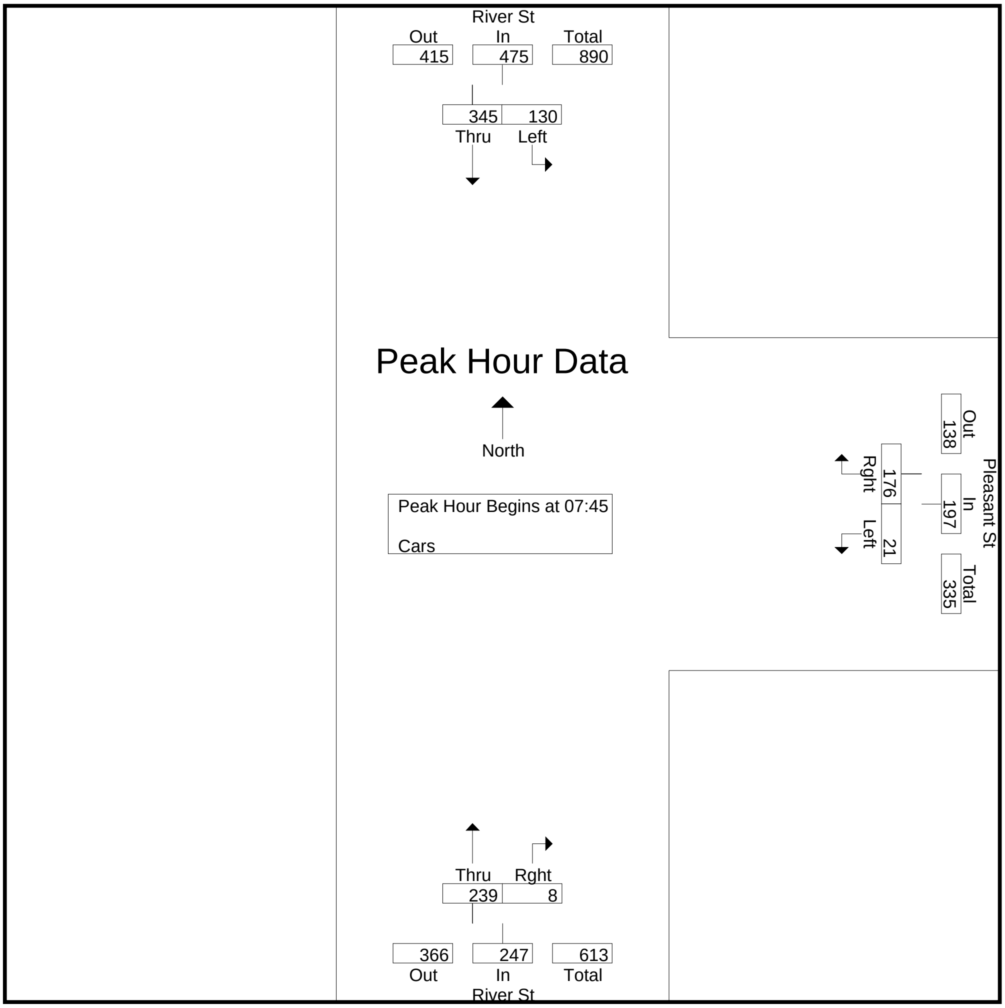
	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	5	21	0	1	31	0	16	1	0	0	75	75
06:15	12	27	0	3	35	1	28	0	0	1	105	106
06:30	11	59	0	1	43	0	24	0	0	0	138	138
06:45	14	68	0	3	37	12	26	0	0	12	148	160
Total	42	175	0	8	146	13	94	1	0	13	466	479
07:00	27	78	0	2	49	2	28	3	0	2	187	189
07:15	25	90	0	3	53	6	40	4	0	6	215	221
07:30	23	76	0	1	52	4	48	2	0	4	202	206
07:45	52	93	0	5	43	5	75	0	0	5	268	273
Total	127	337	0	11	197	17	191	9	0	17	872	889
08:00	15	96	0	3	47	5	58	1	0	5	220	225
08:15	32	81	0	7	38	2	57	4	0	2	219	221
08:30	31	75	0	6	48	1	49	3	0	1	212	213
08:45	29	93	0	3	38	0	62	1	0	0	226	226
Total	107	345	0	19	171	8	226	9	0	8	877	885
Grand Total	276	857	0	38	514	38	511	19	0	38	2215	2253
Apprch %	24.4	75.6		6.9	93.1		96.4	3.6				
Total %	12.5	38.7		1.7	23.2		23.1	0.9		1.7	98.3	

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	**52**	93	**145**	5	43	48	**75**	0	**75**	**268**
08:00	15	**96**	111	3	47	50	58	1	59	220
08:15	32	81	113	**7**	38	45	57	**4**	61	219
08:30	31	75	106	6	**48**	**54**	49	3	52	212
Total Volume	130	345	475	21	176	197	239	8	247	919
% App. Total	27.4	72.6		10.7	89.3		96.8	3.2		
PHF	.625	.898	.819	.750	.917	.912	.797	.500	.823	.857

Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

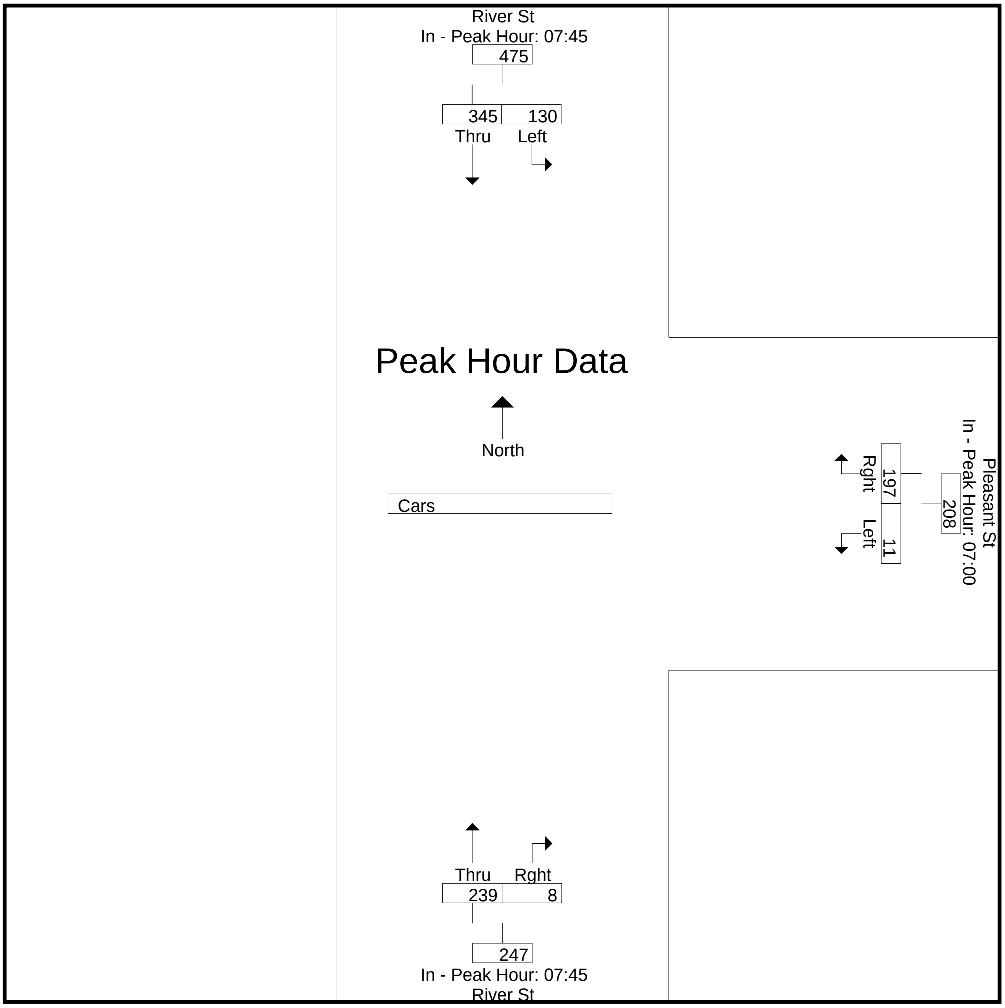
	07:45			07:00			07:45		
+0 mins.	**52**	93	**145**	2	49	51	**75**	0	**75**
+15 mins.	15	**96**	111	3	**53**	**56**	58	1	59
+30 mins.	32	81	113	1	52	53	57	**4**	61
+45 mins.	31	75	106	**5**	43	48	49	3	52
Total Volume	130	345	475	11	197	208	239	8	247
% App. Total	27.4	72.6		5.3	94.7		96.8	3.2	
PHF	.625	.898	.819	.550	.929	.929	.797	.500	.823

Accurate Counts

978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street	File Name : 14850004
E/W Street: Pleasant Street	Site Code : 14850004
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

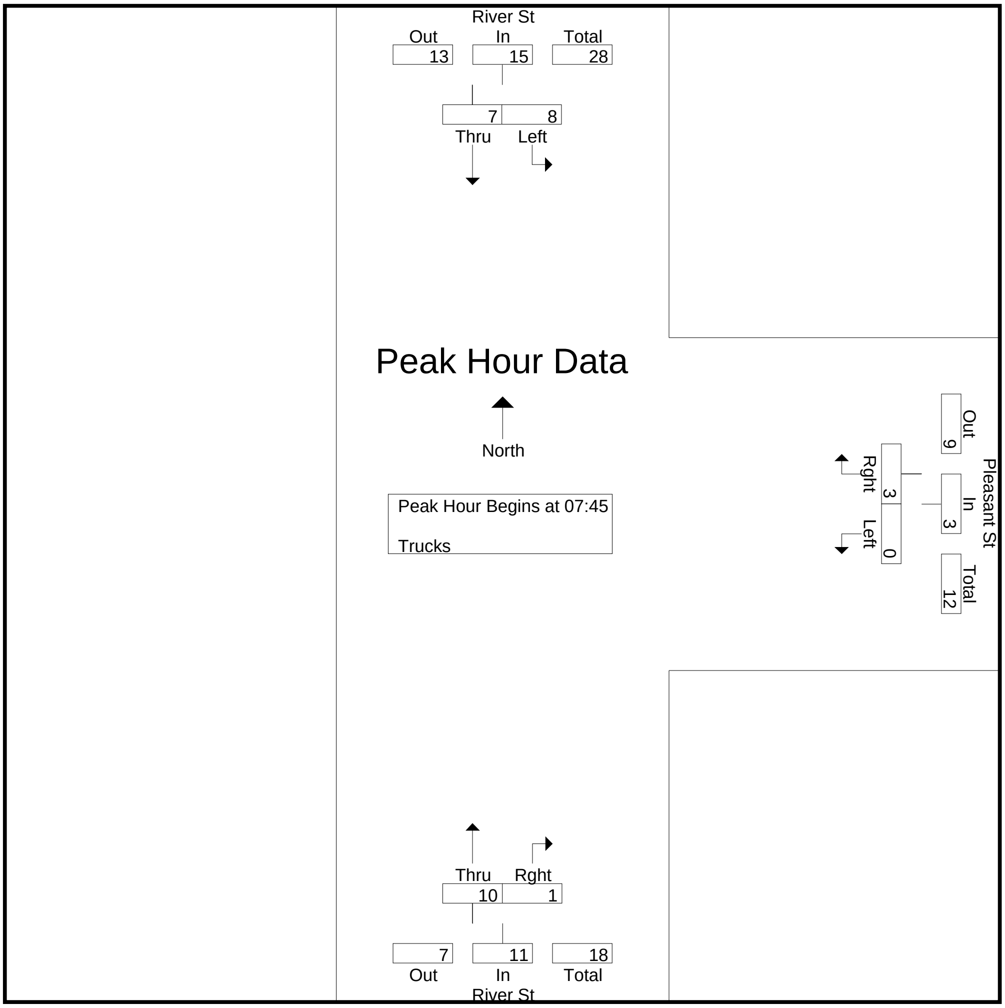
Groups Printed- Trucks

	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	1	0	0	0	0	0	0	0	0	1	1
06:30	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	1	1
07:00	0	2	0	0	0	0	0	0	0	0	2	2
07:15	0	1	0	0	0	0	0	0	0	0	1	1
07:30	0	0	0	0	0	0	3	0	0	0	3	3
07:45	0	2	0	0	1	0	3	0	0	0	6	6
Total	0	5	0	0	1	0	6	0	0	0	12	12
08:00	6	4	0	0	0	0	0	0	0	0	10	10
08:15	0	1	0	0	0	0	7	1	0	0	9	9
08:30	2	0	0	0	2	0	0	0	0	0	4	4
08:45	0	0	0	0	1	0	2	0	0	0	3	3
Total	8	5	0	0	3	0	9	1	0	0	26	26
Grand Total	8	11	0	0	4	0	15	1	0	0	39	39
Apprch %	42.1	57.9		0	100		93.8	6.2				
Total %	20.5	28.2		0	10.3		38.5	2.6		0	100	

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	0	2	2	0	1	1	3	0	3	6
08:00	**6**	**4**	**10**	0	0	0	0	0	0	**10**
08:15	0	1	1	0	0	0	**7**	**1**	**8**	9
08:30	2	0	2	0	**2**	**2**	0	0	0	4
Total Volume	8	7	15	0	3	3	10	1	11	29
% App. Total	53.3	46.7		0	100		90.9	9.1		
PHF	.333	.438	.375	.000	.375	.375	.357	.250	.344	.725

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 2



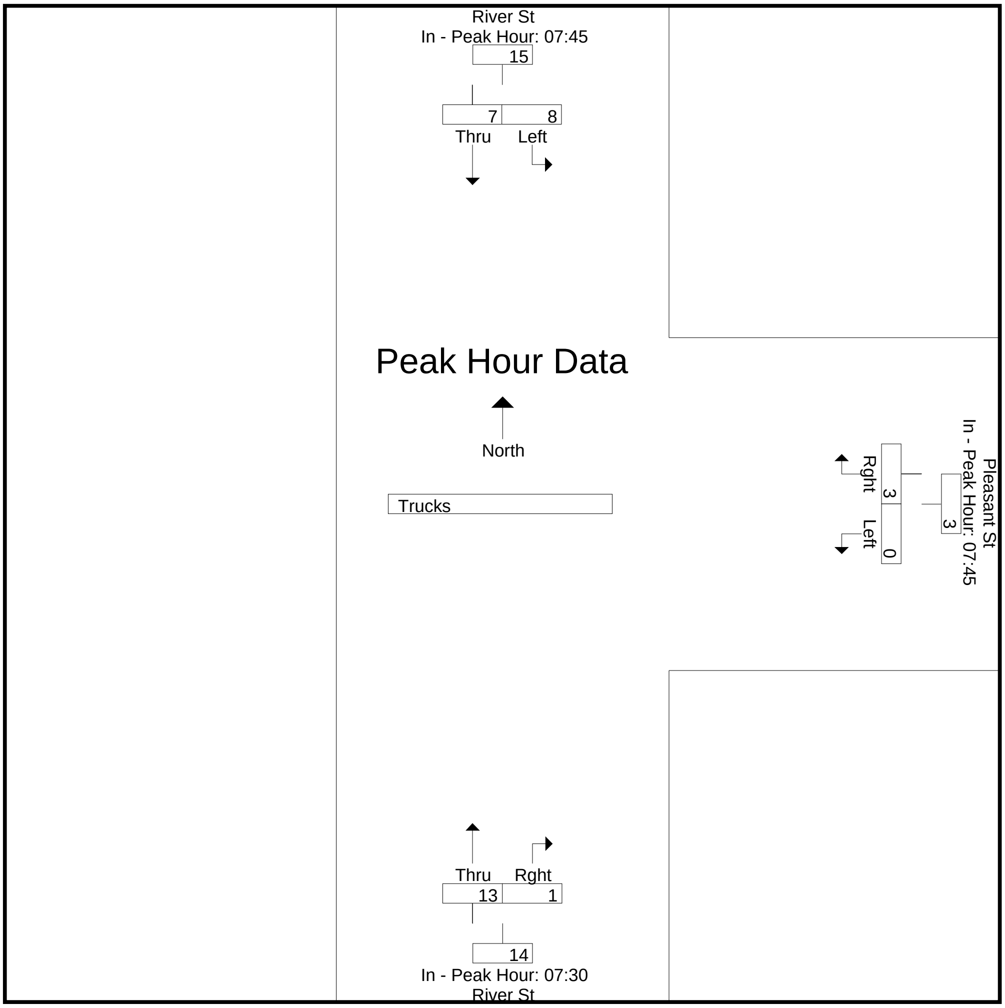
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45			07:45			07:30		
+0 mins.	0	2	2	0	1	1	3	0	3
+15 mins.	**6**	**4**	**10**	0	0	0	3	0	3
+30 mins.	0	1	1	0	0	0	0	0	0
+45 mins.	2	0	2	0	**2**	**2**	**7**	**1**	**8**
Total Volume	8	7	15	0	3	3	13	1	14
% App. Total	53.3	46.7		0	100		92.9	7.1	
PHF	.333	.438	.375	.000	.375	.375	.464	.250	.438

Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 1

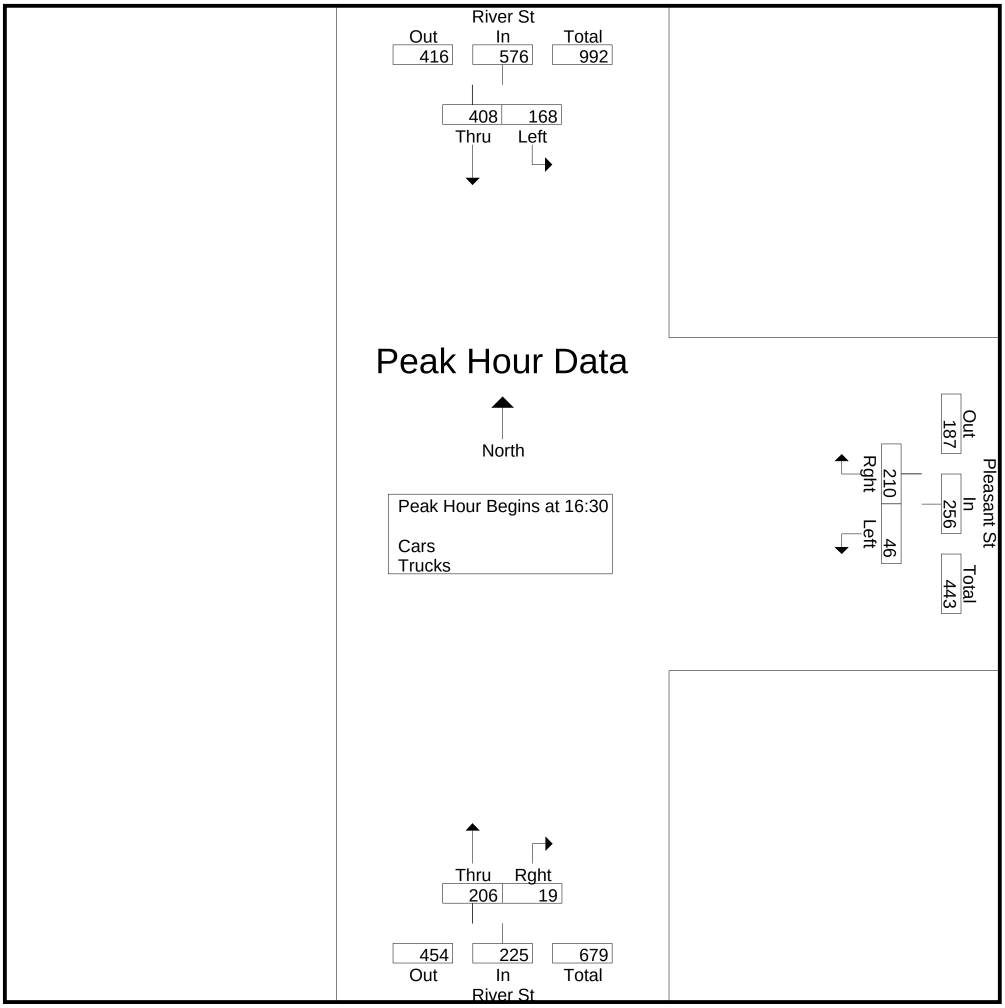
Groups Printed- Cars - Trucks

	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	41	102	0	7	36	4	57	8	0	4	251	255
16:15	54	109	0	6	55	0	51	1	0	0	276	276
16:30	47	97	0	13	50	0	46	3	0	0	256	256
16:45	29	104	0	9	56	2	59	1	0	2	258	260
Total	171	412	0	35	197	6	213	13	0	6	1041	1047
17:00	40	89	0	12	45	2	51	5	0	2	242	244
17:15	52	118	0	12	59	7	50	10	0	7	301	308
17:30	41	90	0	8	39	0	42	6	0	0	226	226
17:45	46	98	0	9	61	4	48	3	0	4	265	269
Total	179	395	0	41	204	13	191	24	0	13	1034	1047
18:00	48	94	0	15	50	0	34	2	0	0	243	243
18:15	48	79	0	6	59	4	32	6	0	4	230	234
18:30	39	88	0	5	48	3	40	3	0	3	223	226
18:45	35	73	0	3	40	7	22	1	0	7	174	181
Total	170	334	0	29	197	14	128	12	0	14	870	884
Grand Total	520	1141	0	105	598	33	532	49	0	33	2945	2978
Apprch %	31.3	68.7		14.9	85.1		91.6	8.4				
Total %	17.7	38.7		3.6	20.3		18.1	1.7		1.1	98.9	
Cars	519	1137		105	594		529	49		0	0	2966
% Cars	99.8	99.6	0	100	99.3	100	99.4	100	0	0	0	99.6
Trucks	1	4		0	4		3	0		0	0	12
% Trucks	0.2	0.4	0	0	0.7	0	0.6	0	0	0	0	0.4

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	47	97	144	**13**	50	63	46	3	49	256
16:45	29	104	133	9	56	65	**59**	1	**60**	258
17:00	40	89	129	12	45	57	51	5	56	242
17:15	**52**	**118**	**170**	12	**59**	**71**	50	**10**	60	**301**
Total Volume	168	408	576	46	210	256	206	19	225	1057
% App. Total	29.2	70.8		18	82		91.6	8.4		
PHF	.808	.864	.847	.885	.890	.901	.873	.475	.938	.878

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010



Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

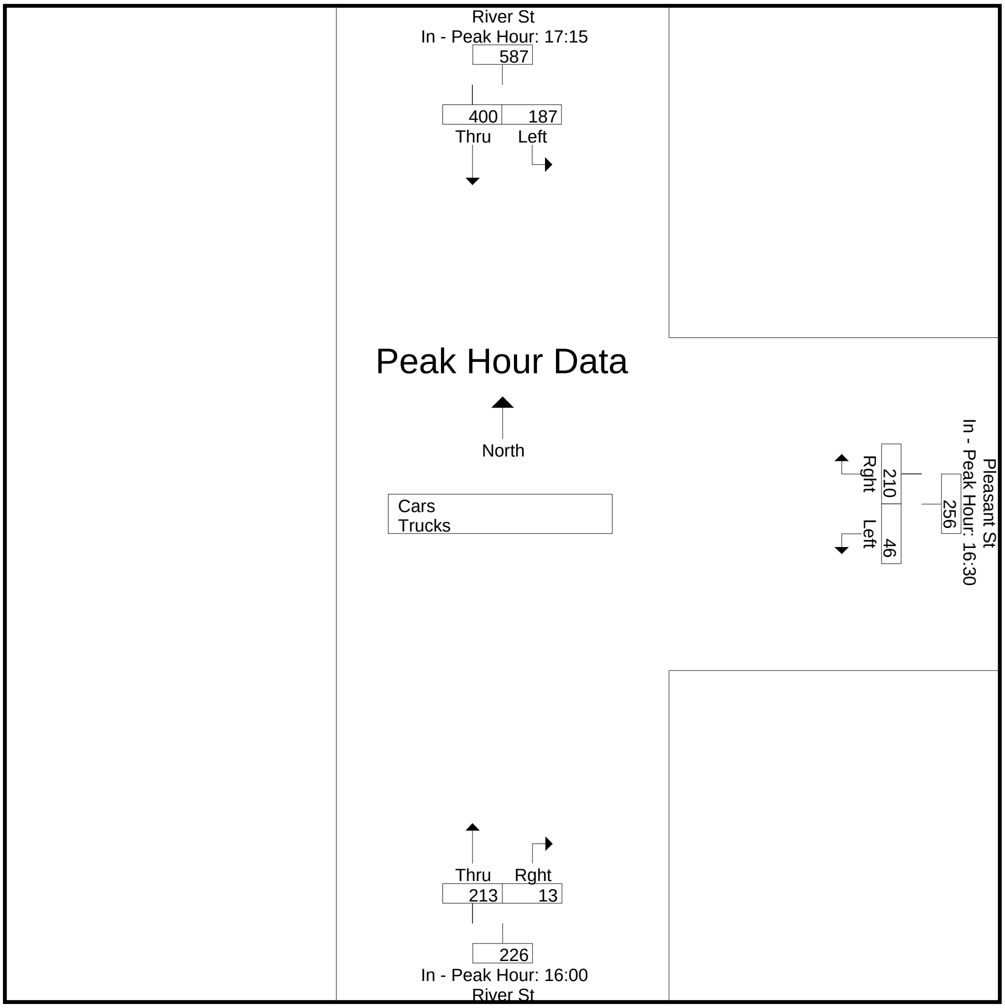
	17:15			16:30			16:00		
+0 mins.	**52**	**118**	**170**	**13**	50	63	57	**8**	**65**
+15 mins.	41	90	131	9	56	65	51	1	52
+30 mins.	46	98	144	12	45	57	46	3	49
+45 mins.	48	94	142	12	**59**	**71**	**59**	1	60
Total Volume	187	400	587	46	210	256	213	13	226
% App. Total	31.9	68.1		18	82		94.2	5.8	
PHF	.899	.847	.863	.885	.890	.901	.903	.406	.869

Accurate Counts

978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 1

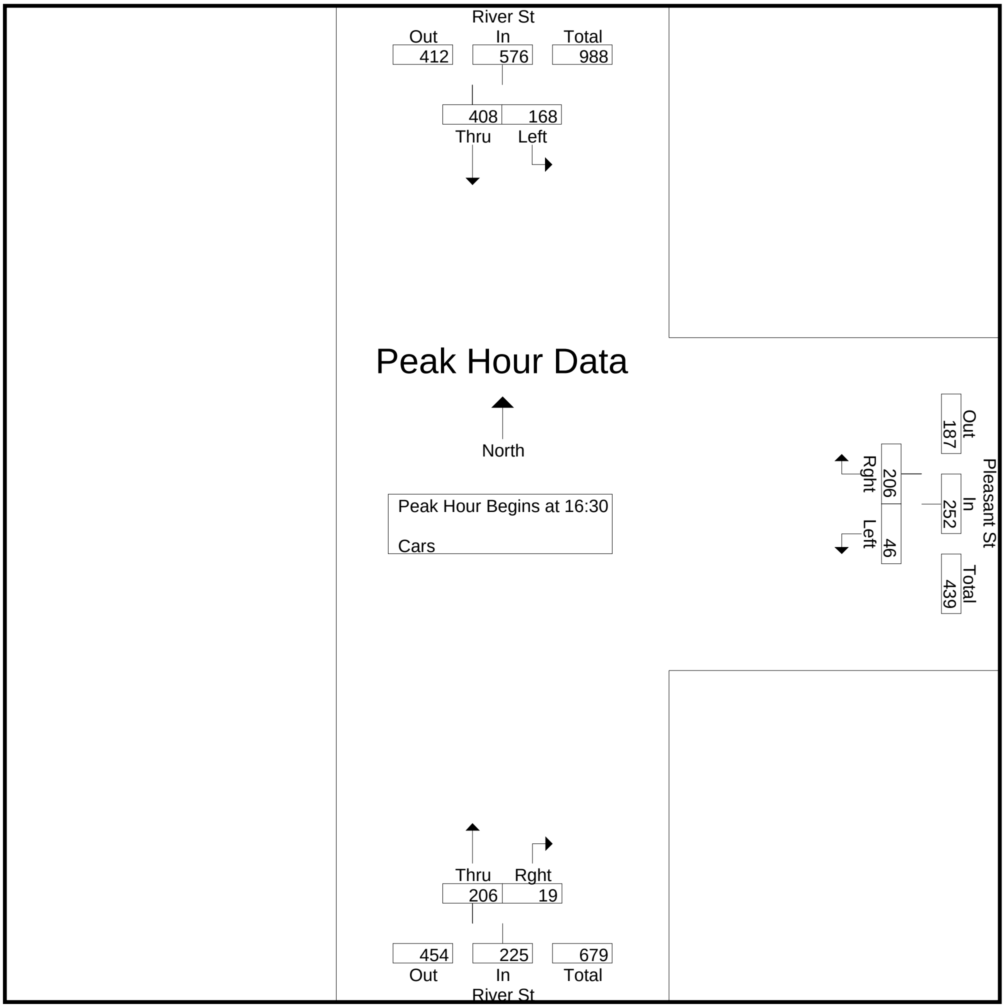
Groups Printed- Cars

	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	40	101	0	7	36	4	56	8	0	4	248	252
16:15	54	107	0	6	55	0	51	1	0	0	274	274
16:30	47	97	0	13	47	0	46	3	0	0	253	253
16:45	29	104	0	9	55	2	59	1	0	2	257	259
Total	170	409	0	35	193	6	212	13	0	6	1032	1038
17:00	40	89	0	12	45	2	51	5	0	2	242	244
17:15	52	118	0	12	59	7	50	10	0	7	301	308
17:30	41	90	0	8	39	0	42	6	0	0	226	226
17:45	46	98	0	9	61	4	48	3	0	4	265	269
Total	179	395	0	41	204	13	191	24	0	13	1034	1047
18:00	48	93	0	15	50	0	34	2	0	0	242	242
18:15	48	79	0	6	59	4	32	6	0	4	230	234
18:30	39	88	0	5	48	3	39	3	0	3	222	225
18:45	35	73	0	3	40	7	21	1	0	7	173	180
Total	170	333	0	29	197	14	126	12	0	14	867	881
Grand Total	519	1137	0	105	594	33	529	49	0	33	2933	2966
Apprch %	31.3	68.7		15	85		91.5	8.5				
Total %	17.7	38.8		3.6	20.3		18	1.7		1.1	98.9	

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	47	97	144	**13**	47	60	46	3	49	253
16:45	29	104	133	9	55	64	**59**	1	**60**	257
17:00	40	89	129	12	45	57	51	5	56	242
17:15	**52**	**118**	**170**	12	**59**	**71**	50	**10**	60	**301**
Total Volume	168	408	576	46	206	252	206	19	225	1053
% App. Total	29.2	70.8		18.3	81.7		91.6	8.4		
PHF	.808	.864	.847	.885	.873	.887	.873	.475	.938	.875

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010



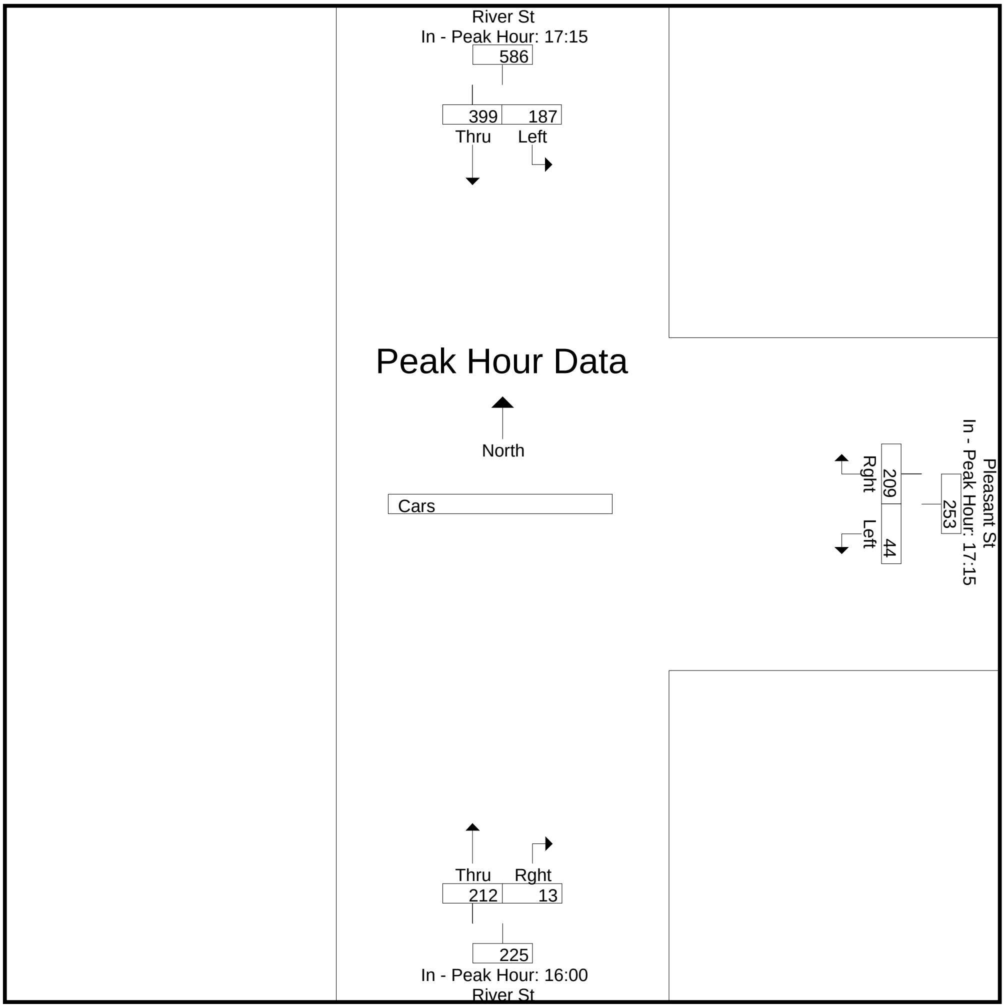
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	17:15			17:15			16:00		
+0 mins.	**52**	**118**	**170**	12	59	**71**	56	**8**	**64**
+15 mins.	41	90	131	8	39	47	51	1	52
+30 mins.	46	98	144	9	**61**	70	46	3	49
+45 mins.	48	93	141	**15**	50	65	**59**	1	60
Total Volume	187	399	586	44	209	253	212	13	225
% App. Total	31.9	68.1		17.4	82.6		94.2	5.8	
PHF	.899	.845	.862	.733	.857	.891	.898	.406	.879

Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010
Page No : 1

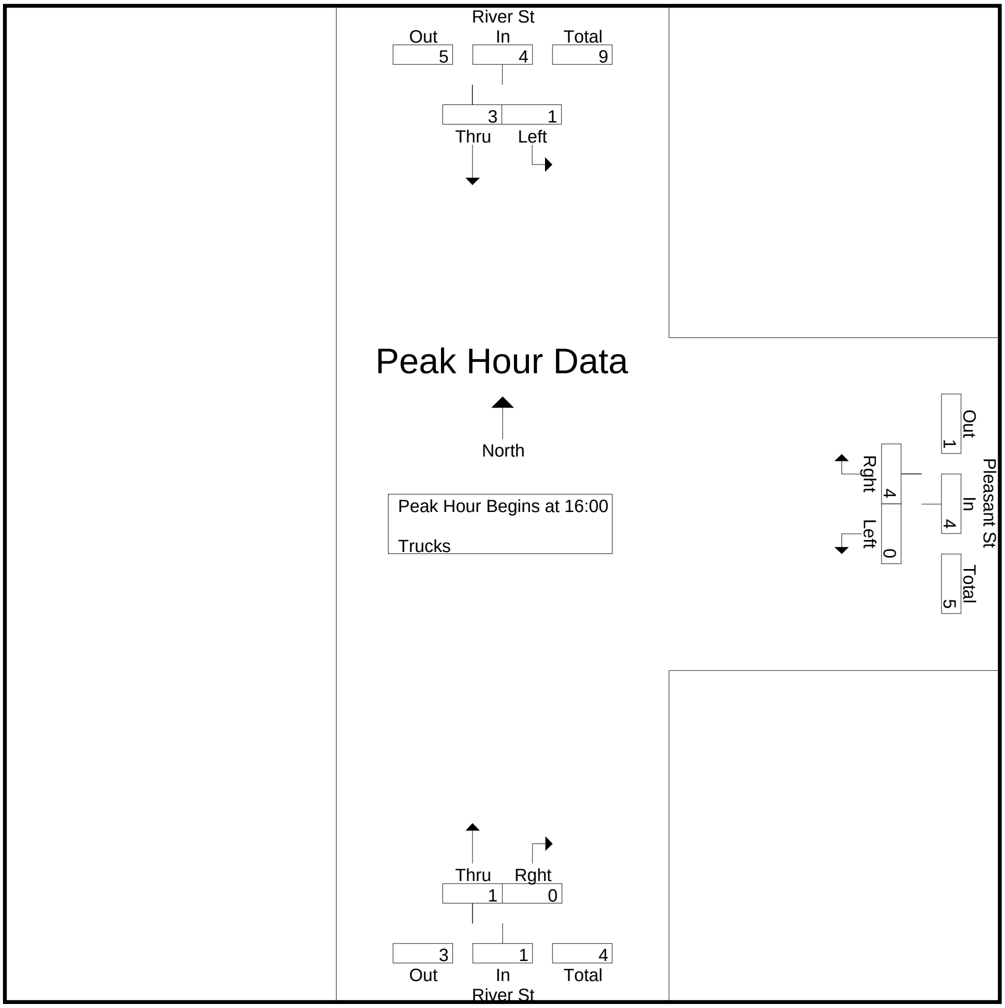
Groups Printed- Trucks

	River St From North			Pleasant St From East			River St From South					
Start Time	Left	Thru	Peds	Left	Rght	Peds	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	1	1	0	0	0	0	1	0	0	0	3	3
16:15	0	2	0	0	0	0	0	0	0	0	2	2
16:30	0	0	0	0	3	0	0	0	0	0	3	3
16:45	0	0	0	0	1	0	0	0	0	0	1	1
Total	1	3	0	0	4	0	1	0	0	0	9	9
17:00	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	1	0	0	0	0	0	0	0	0	1	1
18:15	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	1	0	0	0	1	1
18:45	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	1	0	0	0	0	2	0	0	0	3	3
Grand Total	1	4	0	0	4	0	3	0	0	0	12	12
Apprch %	20	80		0	100		100	0				
Total %	8.3	33.3		0	33.3		25	0		0	100	

	River St From North			Pleasant St From East			River St From South			
Start Time	Left	Thru	App. Total	Left	Rght	App. Total	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:00										
16:00	**1**	1	**2**	0	0	0	**1**	0	**1**	**3**
16:15	0	**2**	2	0	0	0	0	0	0	2
16:30	0	0	0	0	**3**	**3**	0	0	0	3
16:45	0	0	0	0	1	1	0	0	0	1
Total Volume	1	3	4	0	4	4	1	0	1	9
% App. Total	25	75		0	100		100	0		
PHF	.250	.375	.500	.000	.333	.333	.250	.000	.250	.750

N/S Street : River Street
E/W Street: Pleasant Street
City/State : Beverly, MA
Weather : Cloudy

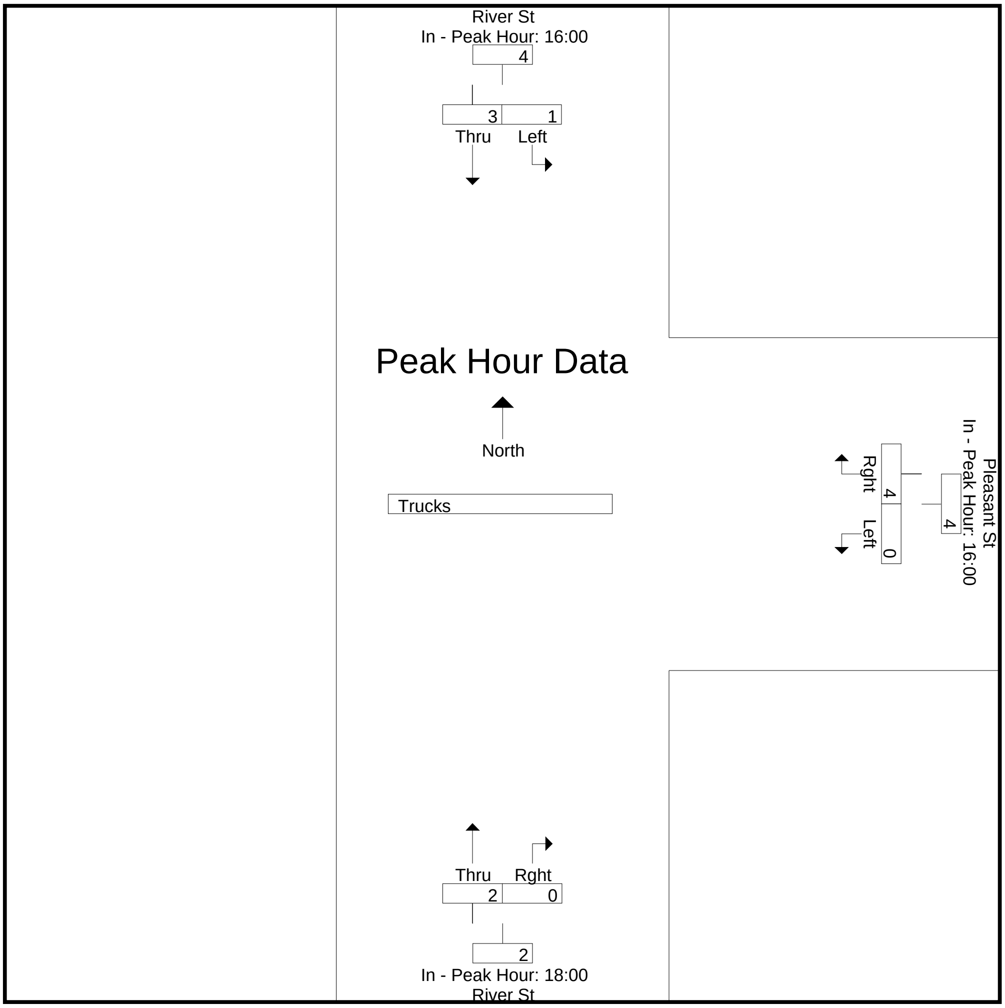
File Name : 14850004
Site Code : 14850004
Start Date : 10/28/2010



Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00			16:00			18:00		
+0 mins.	**1**	1	**2**	0	0	0	0	0	0
+15 mins.	0	**2**	2	0	0	0	0	0	0
+30 mins.	0	0	0	0	**3**	**3**	**1**	0	**1**
+45 mins.	0	0	0	0	1	1	1	0	1
Total Volume	1	3	4	0	4	4	2	0	2
% App. Total	25	75		0	100		100	0	
PHF	.250	.375	.500	.000	.333	.333	.500	.000	.500

N/S Street :	River Street	File Name	: 14850004
E/W Street:	Pleasant Street	Site Code	: 14850004
City/State :	Beverly, MA	Start Date	: 10/28/2010
Weather :	Cloudy	Page No	: 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 1

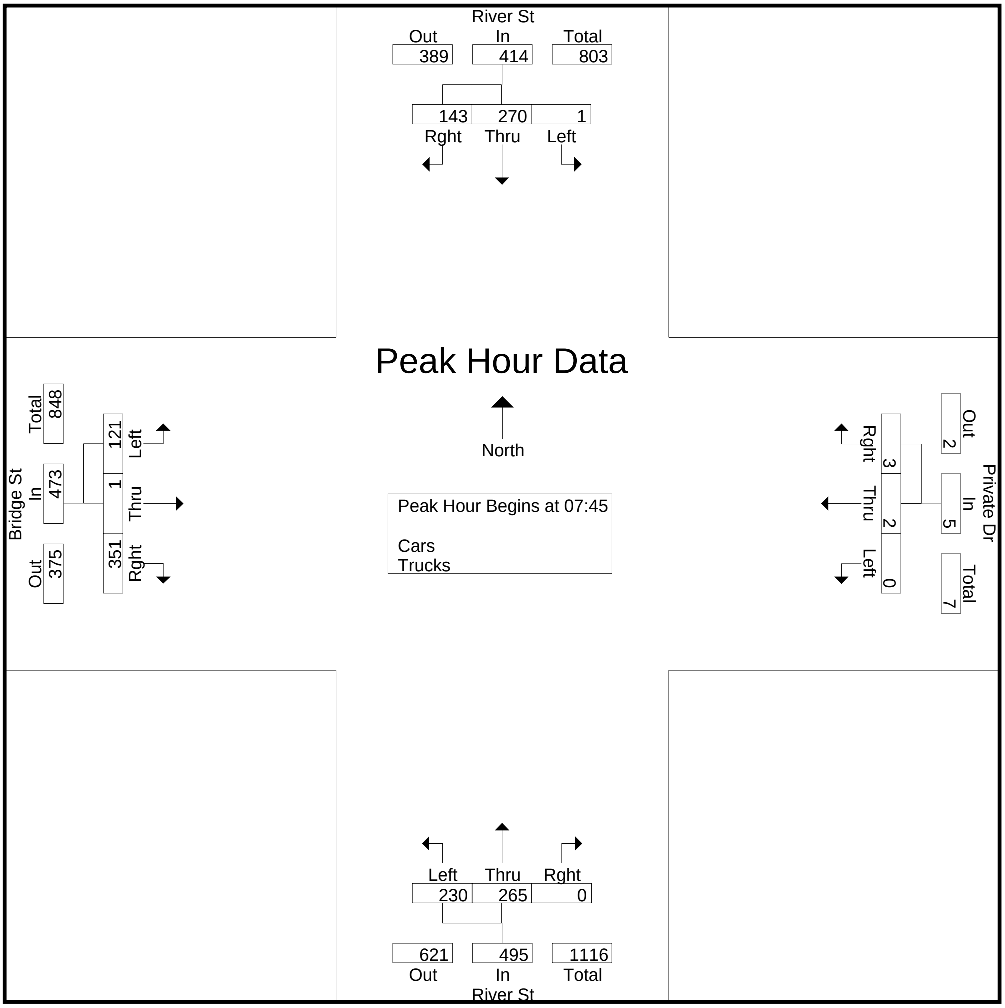
Groups Printed- Cars - Trucks

	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	9	8	0	0	0	0	1	24	9	0	0	16	0	17	1	2	83	85
06:15	0	23	12	0	0	0	0	0	39	10	0	0	9	0	25	0	0	118	118
06:30	0	28	14	0	0	0	0	1	50	19	0	1	18	0	38	3	5	167	172
06:45	0	49	17	1	0	0	0	1	41	23	0	0	9	0	49	0	2	188	190
Total	0	109	51	1	0	0	0	3	154	61	0	1	52	0	129	4	9	556	565
07:00	0	58	32	2	0	0	1	2	41	37	0	5	18	1	49	1	10	237	247
07:15	0	72	31	3	1	0	1	1	40	30	0	3	21	1	83	1	8	280	288
07:30	0	65	21	6	1	0	0	12	65	43	0	9	15	0	75	0	27	285	312
07:45	0	58	30	4	0	0	0	4	65	46	0	4	26	0	76	1	13	301	314
Total	0	253	114	15	2	0	2	19	211	156	0	21	80	2	283	3	58	1103	1161
08:00	0	84	27	10	0	1	1	7	49	83	0	7	35	0	103	0	24	383	407
08:15	0	75	41	4	0	1	1	2	63	59	0	1	30	1	104	0	7	375	382
08:30	1	53	45	5	0	0	1	4	53	77	0	2	30	0	68	1	12	328	340
08:45	0	57	31	0	0	0	1	1	53	47	0	2	35	0	52	1	4	276	280
Total	1	269	144	19	0	2	4	14	218	266	0	12	130	1	327	2	47	1362	1409
Grand Total	1	631	309	35	2	2	6	36	583	483	0	34	262	3	739	9	114	3021	3135
Apprch %	0.1	67.1	32.8		20	20	60		54.7	45.3	0		26.1	0.3	73.6				
Total %	0	20.9	10.2		0.1	0.1	0.2		19.3	16	0		8.7	0.1	24.5		3.6	96.4	
Cars	1	626	304		2	2	6		575	469	0		260	3	734		0	0	3096
% Cars	100	99.2	98.4	100	100	100	100	100	98.6	97.1	0	100	99.2	100	99.3	100	0	0	98.8
Trucks	0	5	5		0	0	0		8	14	0		2	0	5		0	0	39
% Trucks	0	0.8	1.6	0	0	0	0	0	1.4	2.9	0	0	0.8	0	0.7	0	0	0	1.2

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	58	30	88	0	0	0	0	**65**	46	0	111	26	0	76	102	301
08:00	0	**84**	27	111	0	**1**	**1**	**2**	49	**83**	0	**132**	**35**	0	103	**138**	**383**
08:15	0	75	41	**116**	0	1	1	2	63	59	0	122	30	**1**	**104**	135	375
08:30	**1**	53	**45**	99	0	0	1	1	53	77	0	130	30	0	68	98	328
Total Volume	1	270	143	414	0	2	3	5	230	265	0	495	121	1	351	473	1387
% App. Total	0.2	65.2	34.5		0	40	60		46.5	53.5	0		25.6	0.2	74.2		
PHF	.250	.804	.794	.892	.000	.500	.750	.625	.885	.798	.000	.938	.864	.250	.844	.857	.905

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010

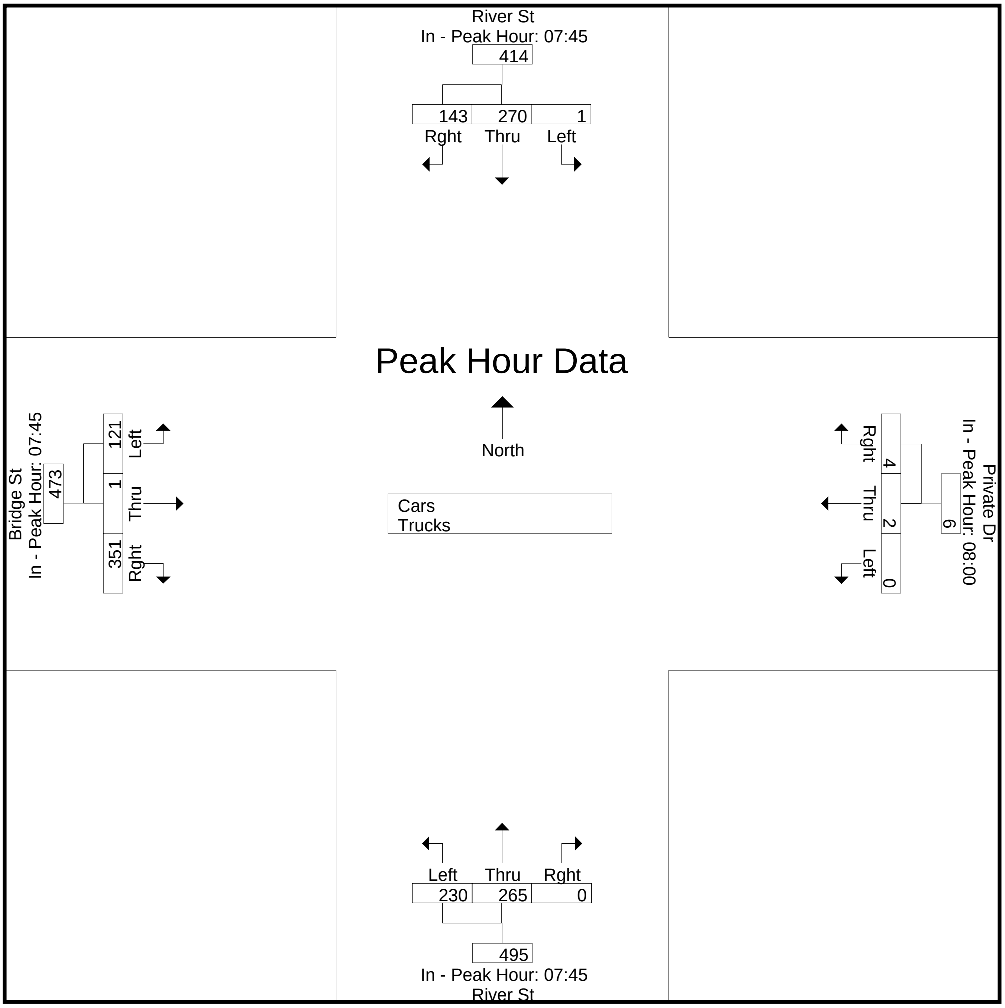


Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45				08:00				07:45				07:45			
+0 mins.	0	58	30	88	0	**1**	**1**	**2**	**65**	46	0	111	26	0	76	102
+15 mins.	0	**84**	27	111	0	1	1	2	49	**83**	0	**132**	**35**	0	103	**138**
+30 mins.	0	75	41	**116**	0	0	1	1	63	59	0	122	30	**1**	**104**	135
+45 mins.	**1**	53	**45**	99	0	0	1	1	53	77	0	130	30	0	68	98
Total Volume	1	270	143	414	0	2	4	6	230	265	0	495	121	1	351	473
% App. Total	0.2	65.2	34.5		0	33.3	66.7		46.5	53.5	0		25.6	0.2	74.2	
PHF	.250	.804	.794	.892	.000	.500	1.000	.750	.885	.798	.000	.938	.864	.250	.844	.857

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



Accurate Counts

978-664-2565

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 1

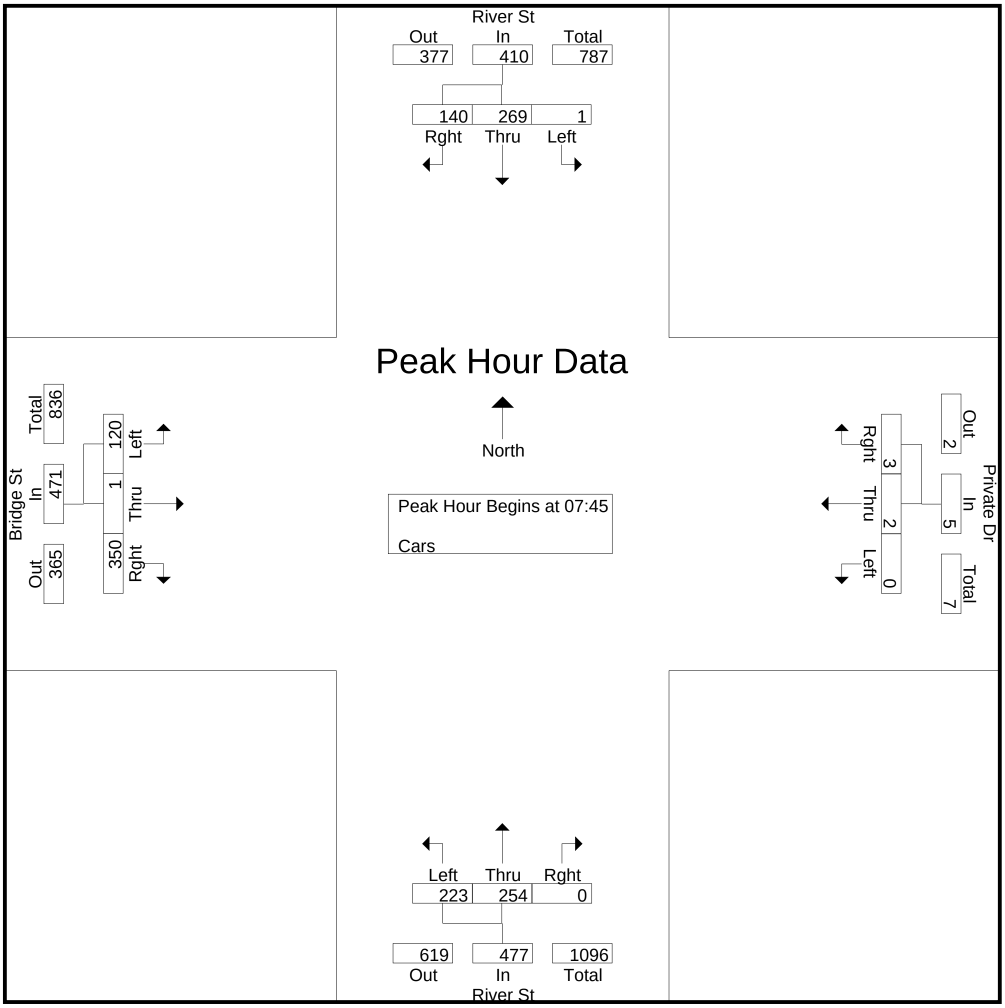
Groups Printed- Cars

	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	9	8	0	0	0	0	1	24	9	0	0	16	0	17	1	2	83	85
06:15	0	23	12	0	0	0	0	0	39	10	0	0	9	0	25	0	0	118	118
06:30	0	27	14	0	0	0	0	1	50	19	0	1	18	0	37	3	5	165	170
06:45	0	49	17	1	0	0	0	1	41	23	0	0	9	0	49	0	2	188	190
Total	0	108	51	1	0	0	0	3	154	61	0	1	52	0	128	4	9	554	563
07:00	0	57	31	2	0	0	1	2	41	36	0	5	18	1	49	1	10	234	244
07:15	0	71	31	3	1	0	1	1	40	29	0	3	21	1	82	1	8	277	285
07:30	0	64	20	6	1	0	0	12	64	43	0	9	14	0	75	0	27	281	308
07:45	0	58	29	4	0	0	0	4	63	44	0	4	26	0	76	1	13	296	309
Total	0	250	111	15	2	0	2	19	208	152	0	21	79	2	282	3	58	1088	1146
08:00	0	84	26	10	0	1	1	7	49	82	0	7	34	0	103	0	24	380	404
08:15	0	74	40	4	0	1	1	2	59	58	0	1	30	1	103	0	7	367	374
08:30	1	53	45	5	0	0	1	4	52	70	0	2	30	0	68	1	12	320	332
08:45	0	57	31	0	0	0	1	1	53	46	0	2	35	0	50	1	4	273	277
Total	1	268	142	19	0	2	4	14	213	256	0	12	129	1	324	2	47	1340	1387
Grand Total	1	626	304	35	2	2	6	36	575	469	0	34	260	3	734	9	114	2982	3096
Apprch %	0.1	67.2	32.7		20	20	60		55.1	44.9	0		26.1	0.3	73.6				
Total %	0	21	10.2		0.1	0.1	0.2		19.3	15.7	0		8.7	0.1	24.6		3.7	96.3	

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	58	29	87	0	0	0	0	**63**	44	0	107	26	0	76	102	296
08:00	0	**84**	26	110	0	**1**	**1**	**2**	49	**82**	0	**131**	**34**	0	**103**	**137**	**380**
08:15	0	74	40	**114**	0	1	1	2	59	58	0	117	30	**1**	103	134	367
08:30	**1**	53	**45**	99	0	0	1	1	52	70	0	122	30	0	68	98	320
Total Volume	1	269	140	410	0	2	3	5	223	254	0	477	120	1	350	471	1363
% App. Total	0.2	65.6	34.1		0	40	60		46.8	53.2	0		25.5	0.2	74.3		
PHF	.250	.801	.778	.899	.000	.500	.750	.625	.885	.774	.000	.910	.882	.250	.850	.859	.897

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

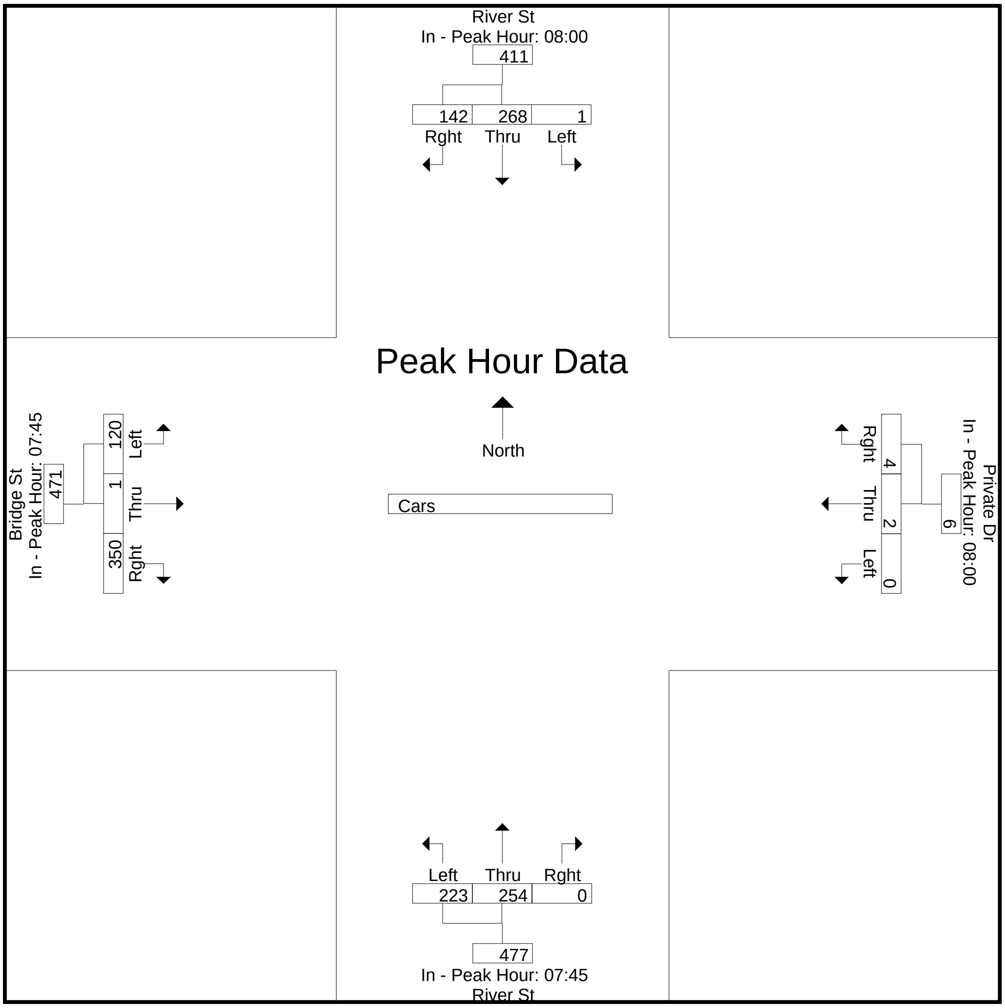
	08:00				08:00				07:45				07:45			
+0 mins.	0	**84**	26	110	0	**1**	**1**	**2**	**63**	44	0	107	26	0	76	102
+15 mins.	0	74	40	**114**	0	1	1	2	49	**82**	0	**131**	**34**	0	**103**	**137**
+30 mins.	**1**	53	**45**	99	0	0	1	1	59	58	0	117	30	**1**	103	134
+45 mins.	0	57	31	88	0	0	1	1	52	70	0	122	30	0	68	98
Total Volume	1	268	142	411	0	2	4	6	223	254	0	477	120	1	350	471
% App. Total	0.2	65.2	34.5		0	33.3	66.7		46.8	53.2	0		25.5	0.2	74.3	
PHF	.250	.798	.789	.901	.000	.500	1.000	.750	.885	.774	.000	.910	.882	.250	.850	.859

Accurate Counts

978-664-2565

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

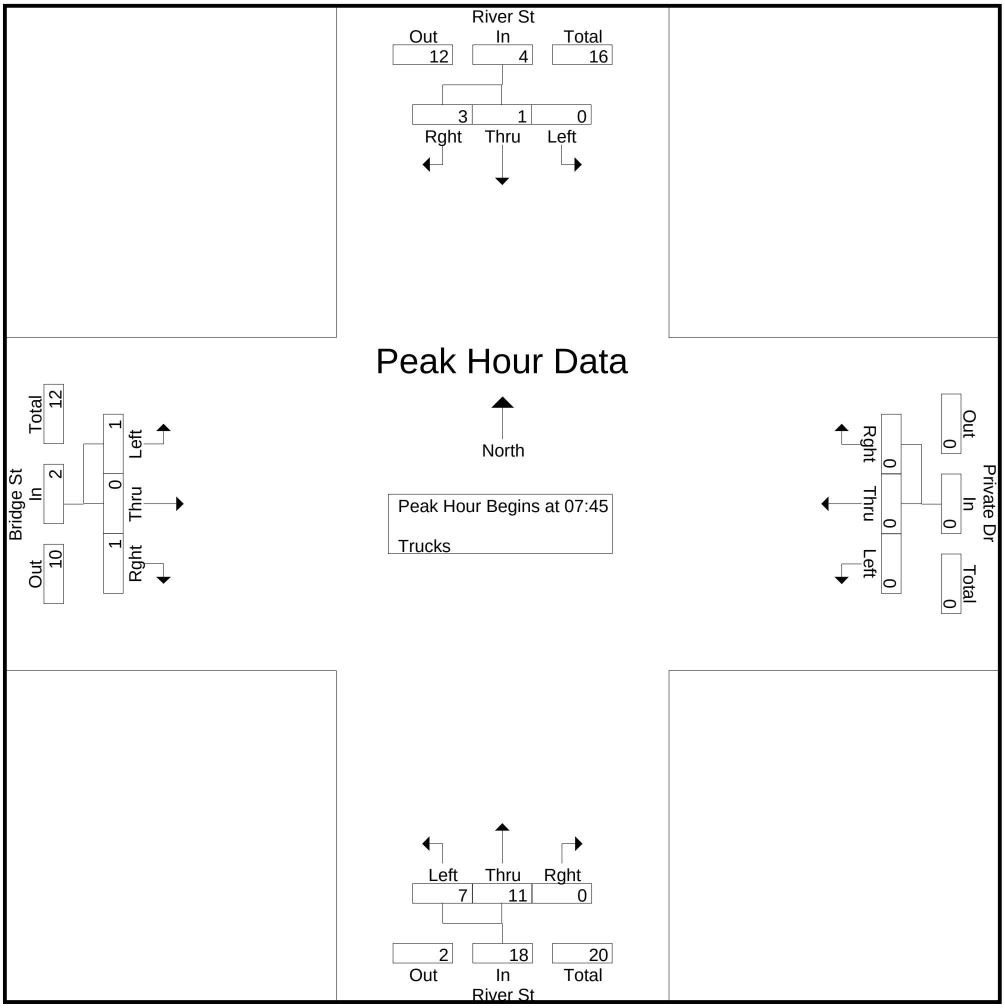
N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 1

Groups Printed- Trucks

	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2
07:00	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	3
07:15	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3	3
07:30	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	4	4
07:45	0	0	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	5	5
Total	0	3	3	0	0	0	0	0	3	4	0	0	1	0	1	0	0	15	15
08:00	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	3
08:15	0	1	1	0	0	0	0	0	4	1	0	0	0	0	1	0	0	8	8
08:30	0	0	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	8	8
08:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3	3
Total	0	1	2	0	0	0	0	0	5	10	0	0	1	0	3	0	0	22	22
Grand Total	0	5	5	0	0	0	0	0	8	14	0	0	2	0	5	0	0	39	39
Apprch %	0	50	50		0	0	0		36.4	63.6	0		28.6	0	71.4				
Total %	0	12.8	12.8		0	0	0		20.5	35.9	0		5.1	0	12.8		0	100	

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	0	**1**	1	0	0	0	0	2	2	0	4	0	0	0	0	5
08:00	0	0	1	1	0	0	0	0	0	1	0	1	**1**	0	0	**1**	3
08:15	0	**1**	1	**2**	0	0	0	0	**4**	1	0	5	0	0	**1**	1	**8**
08:30	0	0	0	0	0	0	0	0	1	**7**	0	**8**	0	0	0	0	8
Total Volume	0	1	3	4	0	0	0	0	7	11	0	18	1	0	1	2	24
% App. Total	0	25	75		0	0	0		38.9	61.1	0		50	0	50		
PHF	.000	.250	.750	.500	.000	.000	.000	.000	.438	.393	.000	.563	.250	.000	.250	.500	.750



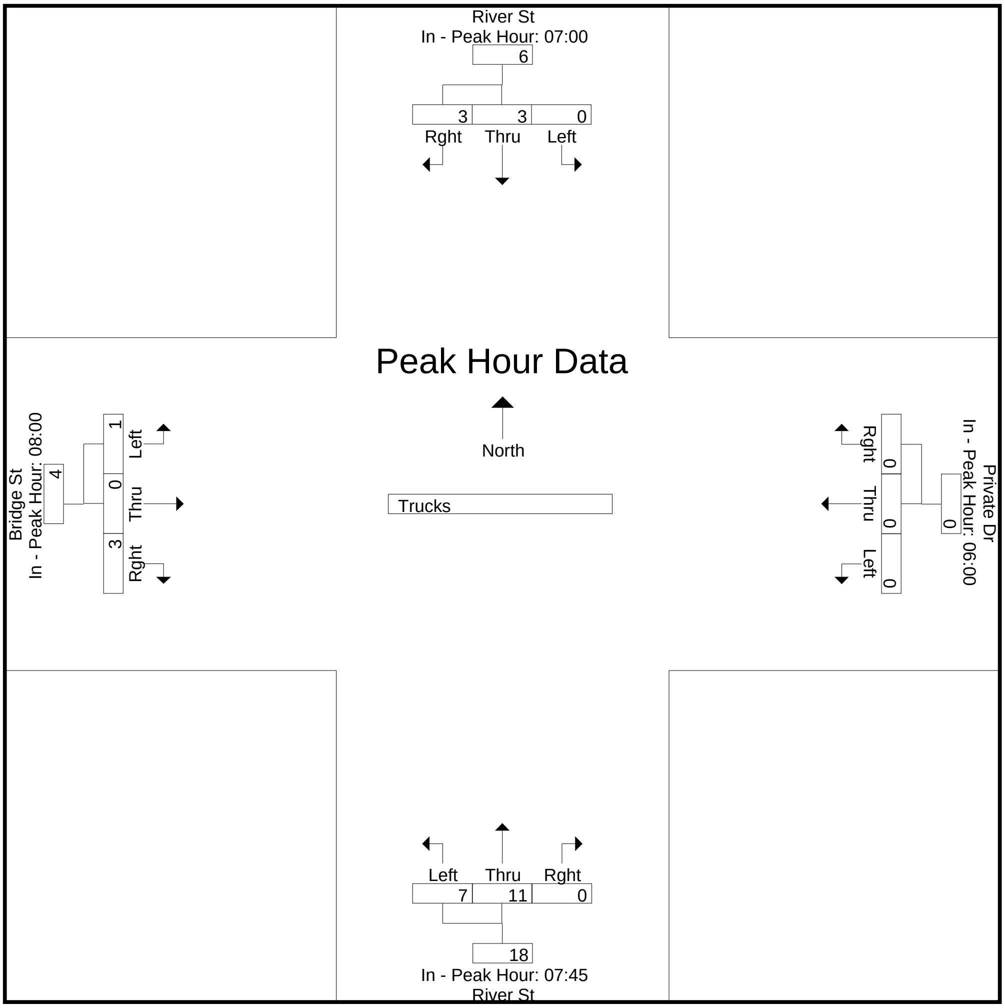
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00				06:00				07:45				08:00			
+0 mins.	0	**1**	**1**	**2**	0	0	0	0	2	2	0	4	**1**	0	0	1
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1
+30 mins.	0	1	1	2	0	0	0	0	**4**	1	0	5	0	0	0	0
+45 mins.	0	0	1	1	0	0	0	0	1	**7**	0	**8**	0	0	**2**	**2**
Total Volume	0	3	3	6	0	0	0	0	7	11	0	18	1	0	3	4
% App. Total	0	50	50		0	0	0		38.9	61.1	0		25	0	75	
PHF	.000	.750	.750	.750	.000	.000	.000	.000	.438	.393	.000	.563	.250	.000	.375	.500

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street	File Name : 14850005
E/W Street: Bridge St / Driveway	Site Code : 14850005
City/State : Beverly, MA	Start Date : 10/28/2010
Weather : Cloudy	Page No : 1

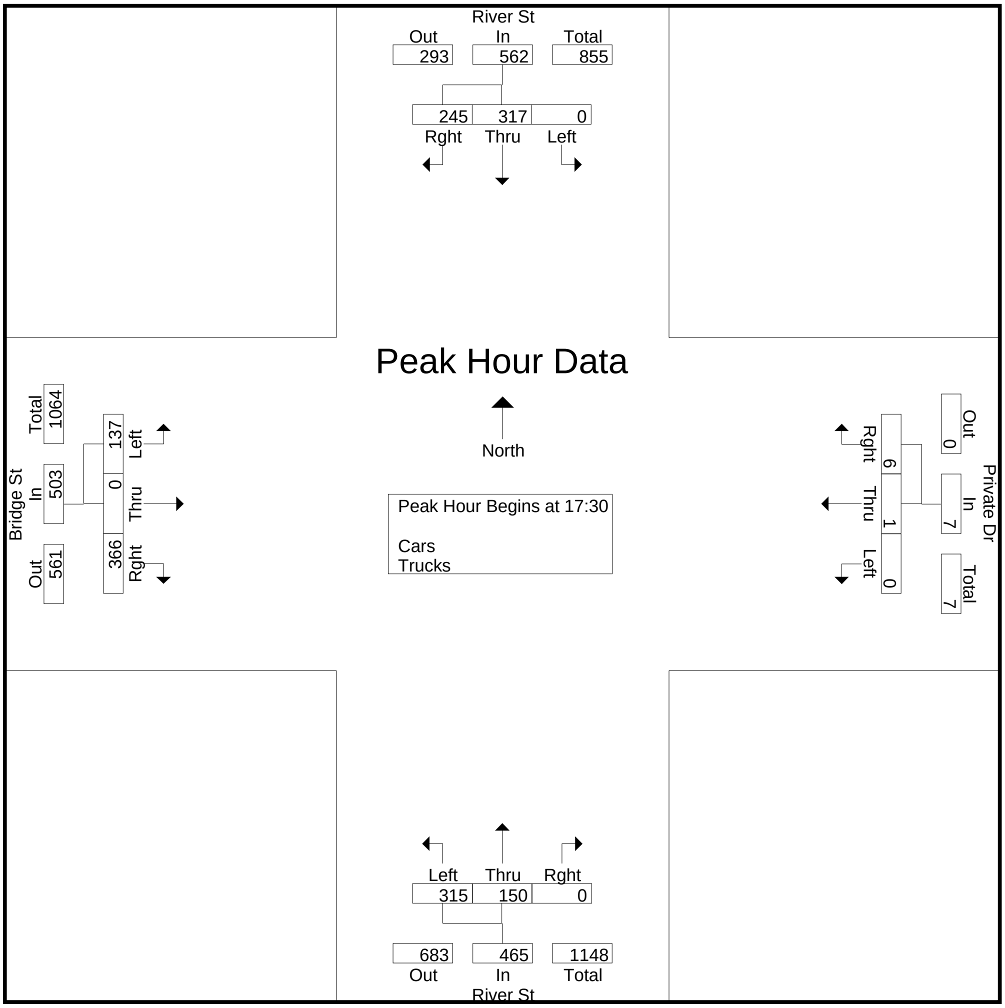
Groups Printed- Cars - Trucks

	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	1	76	78	1	0	1	2	1	72	41	0	0	29	0	82	2	4	382	386
16:15	1	77	61	3	0	0	1	2	66	36	0	1	30	0	84	0	6	356	362
16:30	0	83	58	1	2	1	2	1	62	52	0	0	33	0	89	3	5	382	387
16:45	0	65	57	3	1	2	1	3	73	61	0	0	39	2	83	0	6	384	390
Total	2	301	254	8	3	4	6	7	273	190	0	1	131	2	338	5	21	1504	1525
17:00	0	78	54	0	1	1	1	5	89	48	0	3	51	1	78	0	8	402	410
17:15	1	69	54	2	0	0	0	3	74	28	0	2	45	0	77	5	12	348	360
17:30	0	71	52	1	0	1	3	2	97	33	0	2	26	0	93	13	18	376	394
17:45	0	83	76	0	0	0	1	5	67	31	0	1	38	0	85	4	10	381	391
Total	1	301	236	3	1	2	5	15	327	140	0	8	160	1	333	22	48	1507	1555
18:00	0	84	56	5	0	0	2	4	78	54	0	3	33	0	92	2	14	399	413
18:15	0	79	61	6	0	0	0	6	73	32	0	3	40	0	96	2	17	381	398
18:30	0	53	75	26	0	0	0	22	78	34	0	2	37	0	79	2	52	356	408
18:45	0	58	52	4	1	0	0	9	64	29	0	4	37	0	73	1	18	314	332
Total	0	274	244	41	1	0	2	41	293	149	0	12	147	0	340	7	101	1450	1551
Grand Total	3	876	734	52	5	6	13	63	893	479	0	21	438	3	1011	34	170	4461	4631
Apprch %	0.2	54.3	45.5		20.8	25	54.2		65.1	34.9	0		30.2	0.2	69.6				
Total %	0.1	19.6	16.5		0.1	0.1	0.3		20	10.7	0		9.8	0.1	22.7		3.7	96.3	
Cars	3	871	729		5	6	13		885	477	0		432	3	1001		0	0	4595
% Cars	100	99.4	99.3	100	100	100	100	100	99.1	99.6	0	100	98.6	100	99	100	0	0	99.2
Trucks	0	5	5		0	0	0		8	2	0		6	0	10		0	0	36
% Trucks	0	0.6	0.7	0	0	0	0	0	0.9	0.4	0	0	1.4	0	1	0	0	0	0.8

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:30																	
17:30	0	71	52	123	0	**1**	**3**	**4**	**97**	33	0	130	26	0	93	119	376
17:45	0	83	**76**	**159**	0	0	1	1	67	31	0	98	38	0	85	123	381
18:00	0	**84**	56	140	0	0	2	2	78	**54**	0	**132**	33	0	92	125	**399**
18:15	0	79	61	140	0	0	0	0	73	32	0	105	**40**	0	**96**	**136**	381
Total Volume	0	317	245	562	0	1	6	7	315	150	0	465	137	0	366	503	1537
% App. Total	0	56.4	43.6		0	14.3	85.7		67.7	32.3	0		27.2	0	72.8		
PHF	.000	.943	.806	.884	.000	.250	.500	.438	.812	.694	.000	.881	.856	.000	.953	.925	.963

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 2



Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1

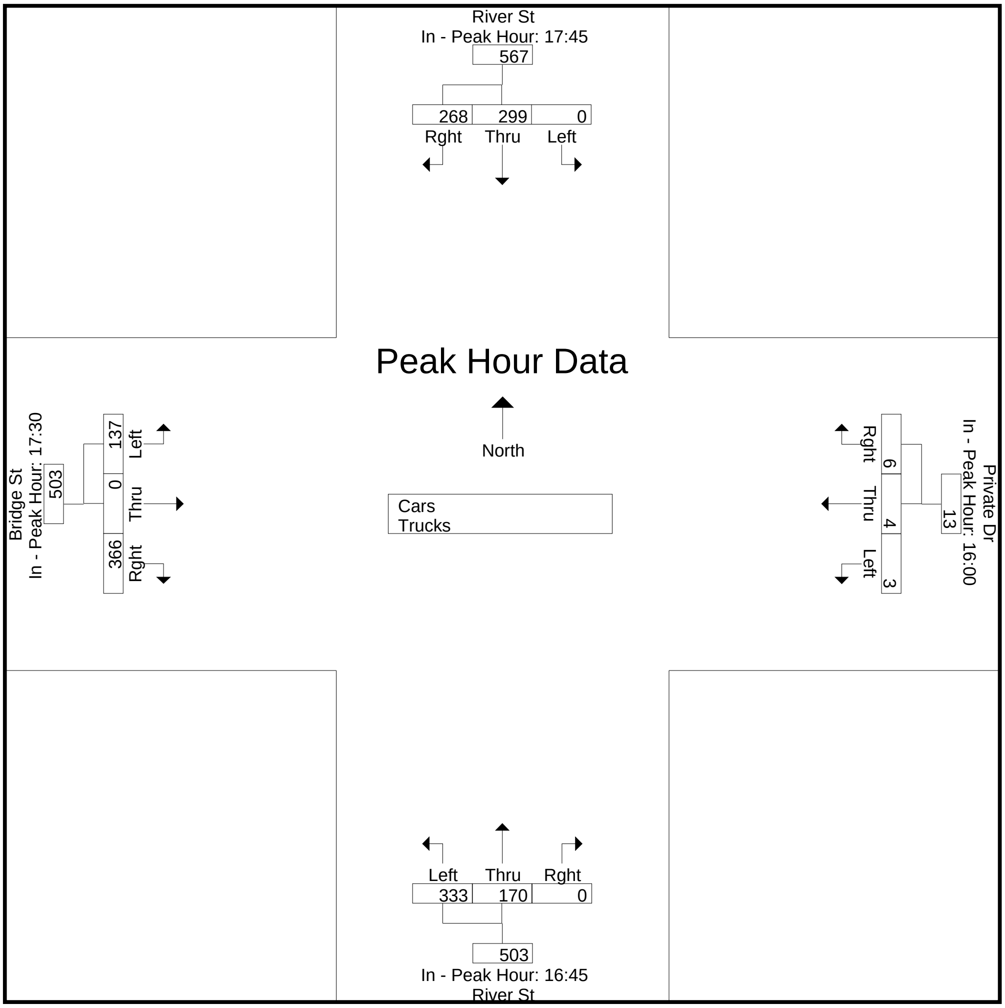
Peak Hour for Each Approach Begins at:

	17:45				16:00				16:45				17:30			
+0 mins.	0	83	**76**	**159**	0	1	**2**	3	73	**61**	0	134	26	0	93	119
+15 mins.	0	**84**	56	140	0	0	1	1	89	48	0	**137**	38	0	85	123
+30 mins.	0	79	61	140	**2**	1	2	**5**	74	28	0	102	33	0	92	125
+45 mins.	0	53	75	128	1	**2**	1	4	**97**	33	0	130	**40**	0	**96**	**136**
Total Volume	0	299	268	567	3	4	6	13	333	170	0	503	137	0	366	503
% App. Total	0	52.7	47.3		23.1	30.8	46.2		66.2	33.8	0		27.2	0	72.8	
PHF	.000	.890	.882	.892	.375	.500	.750	.650	.858	.697	.000	.918	.856	.000	.953	.925

Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 1

Groups Printed- Cars

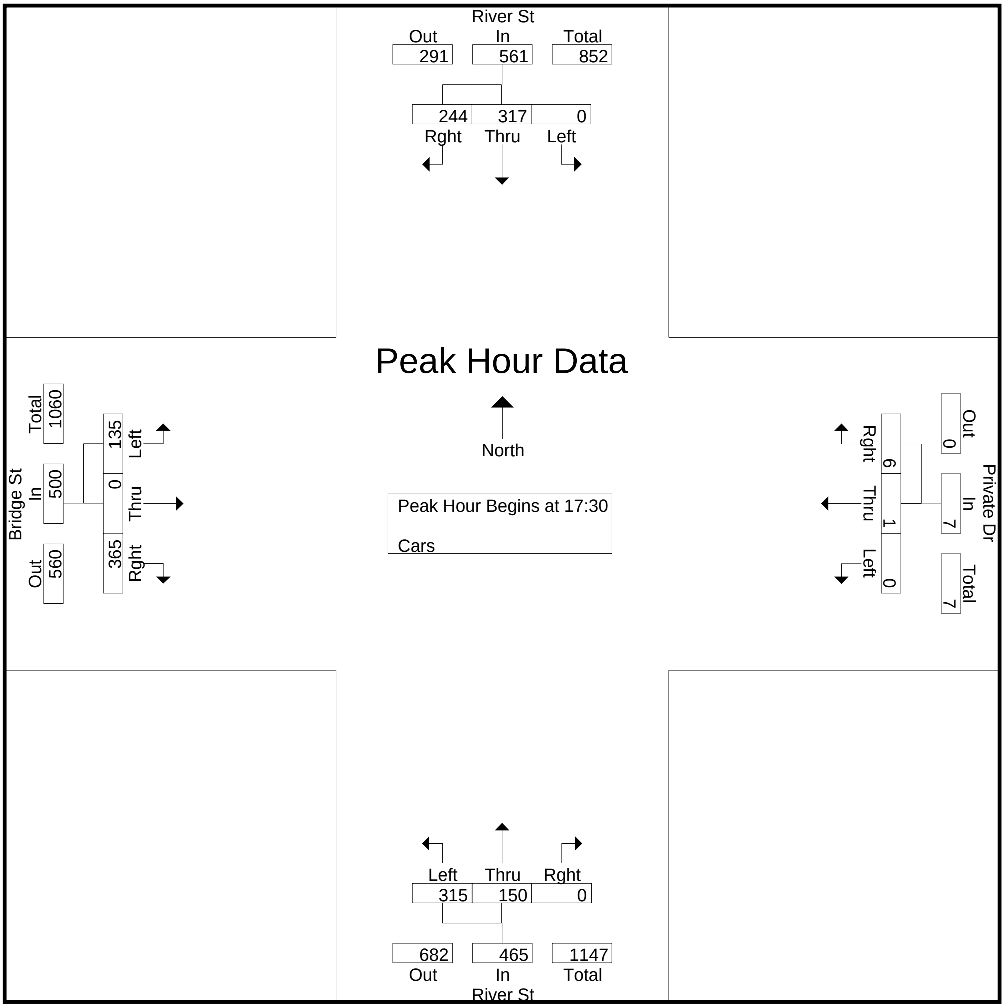
	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	1	76	78	1	0	1	2	1	70	41	0	0	29	0	81	2	4	379	383
16:15	1	75	60	3	0	0	1	2	66	35	0	1	28	0	81	0	6	347	353
16:30	0	81	56	1	2	1	2	1	62	51	0	0	33	0	88	3	5	376	381
16:45	0	65	57	3	1	2	1	3	70	61	0	0	39	2	80	0	6	378	384
Total	2	297	251	8	3	4	6	7	268	188	0	1	129	2	330	5	21	1480	1501
17:00	0	78	54	0	1	1	1	5	87	48	0	3	51	1	78	0	8	400	408
17:15	1	68	53	2	0	0	0	3	74	28	0	2	44	0	76	5	12	344	356
17:30	0	71	51	1	0	1	3	2	97	33	0	2	26	0	93	13	18	375	393
17:45	0	83	76	0	0	0	1	5	67	31	0	1	37	0	85	4	10	380	390
Total	1	300	234	3	1	2	5	15	325	140	0	8	158	1	332	22	48	1499	1547
18:00	0	84	56	5	0	0	2	4	78	54	0	3	32	0	91	2	14	397	411
18:15	0	79	61	6	0	0	0	6	73	32	0	3	40	0	96	2	17	381	398
18:30	0	53	75	26	0	0	0	22	77	34	0	2	36	0	79	2	52	354	406
18:45	0	58	52	4	1	0	0	9	64	29	0	4	37	0	73	1	18	314	332
Total	0	274	244	41	1	0	2	41	292	149	0	12	145	0	339	7	101	1446	1547
Grand Total	3	871	729	52	5	6	13	63	885	477	0	21	432	3	1001	34	170	4425	4595
Apprch %	0.2	54.3	45.5		20.8	25	54.2		65	35	0		30.1	0.2	69.7				
Total %	0.1	19.7	16.5		0.1	0.1	0.3		20	10.8	0		9.8	0.1	22.6		3.7	96.3	

Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:30

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
17:30	0	71	51	122	0	**1**	**3**	**4**	**97**	33	0	130	26	0	93	119	375
17:45	0	83	**76**	**159**	0	0	1	1	67	31	0	98	37	0	85	122	380
18:00	0	**84**	56	140	0	0	2	2	78	**54**	0	**132**	32	0	91	123	**397**
18:15	0	79	61	140	0	0	0	0	73	32	0	105	**40**	0	**96**	**136**	381
Total Volume	0	317	244	561	0	1	6	7	315	150	0	465	135	0	365	500	1533
% App. Total	0	56.5	43.5		0	14.3	85.7		67.7	32.3	0		27	0	73		
PHF	.000	.943	.803	.882	.000	.250	.500	.438	.812	.694	.000	.881	.844	.000	.951	.919	.965

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 2



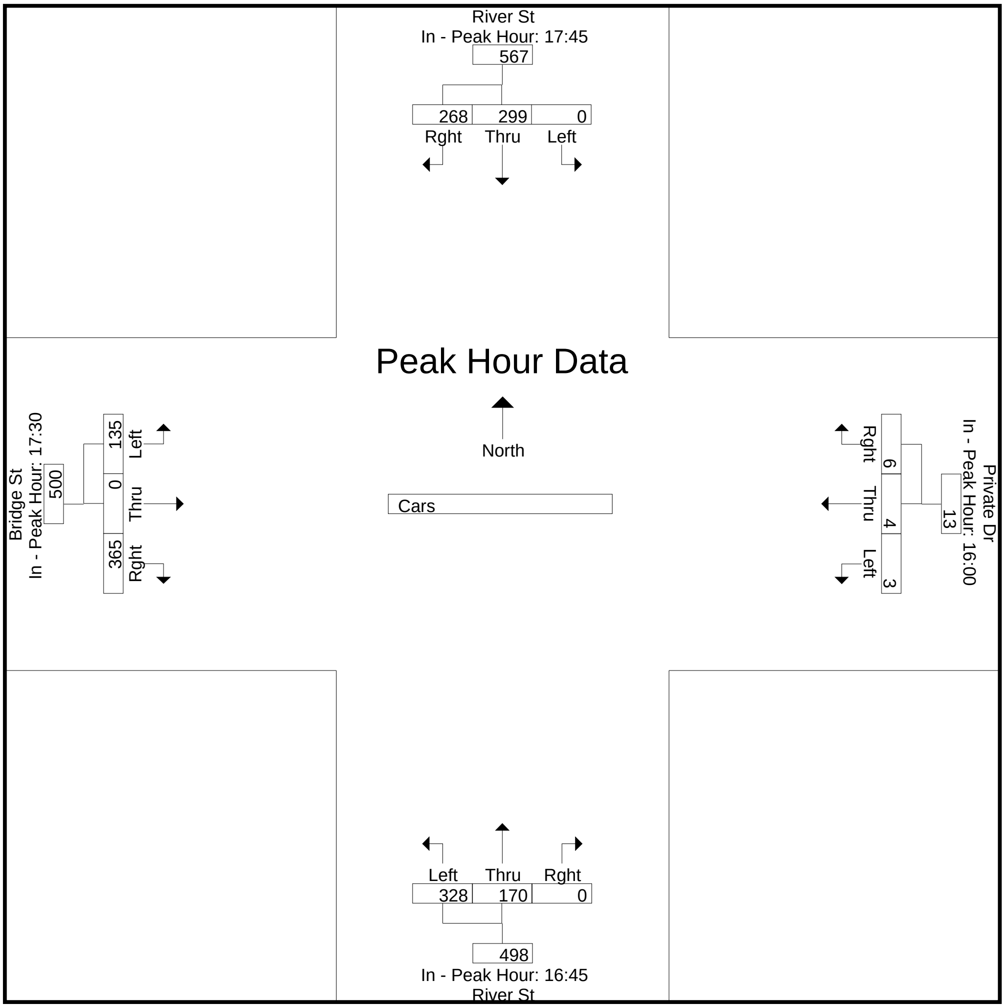
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:45				16:00				16:45				17:30			
+0 mins.	0	83	**76**	**159**	0	1	**2**	3	70	**61**	0	131	26	0	93	119
+15 mins.	0	**84**	56	140	0	0	1	1	87	48	0	**135**	37	0	85	122
+30 mins.	0	79	61	140	**2**	1	2	**5**	74	28	0	102	32	0	91	123
+45 mins.	0	53	75	128	1	**2**	1	4	**97**	33	0	130	**40**	0	**96**	**136**
Total Volume	0	299	268	567	3	4	6	13	328	170	0	498	135	0	365	500
% App. Total	0	52.7	47.3		23.1	30.8	46.2		65.9	34.1	0		27	0	73	
PHF	.000	.890	.882	.892	.375	.500	.750	.650	.845	.697	.000	.922	.844	.000	.951	.919

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



Accurate Counts
978-664-2565

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 1

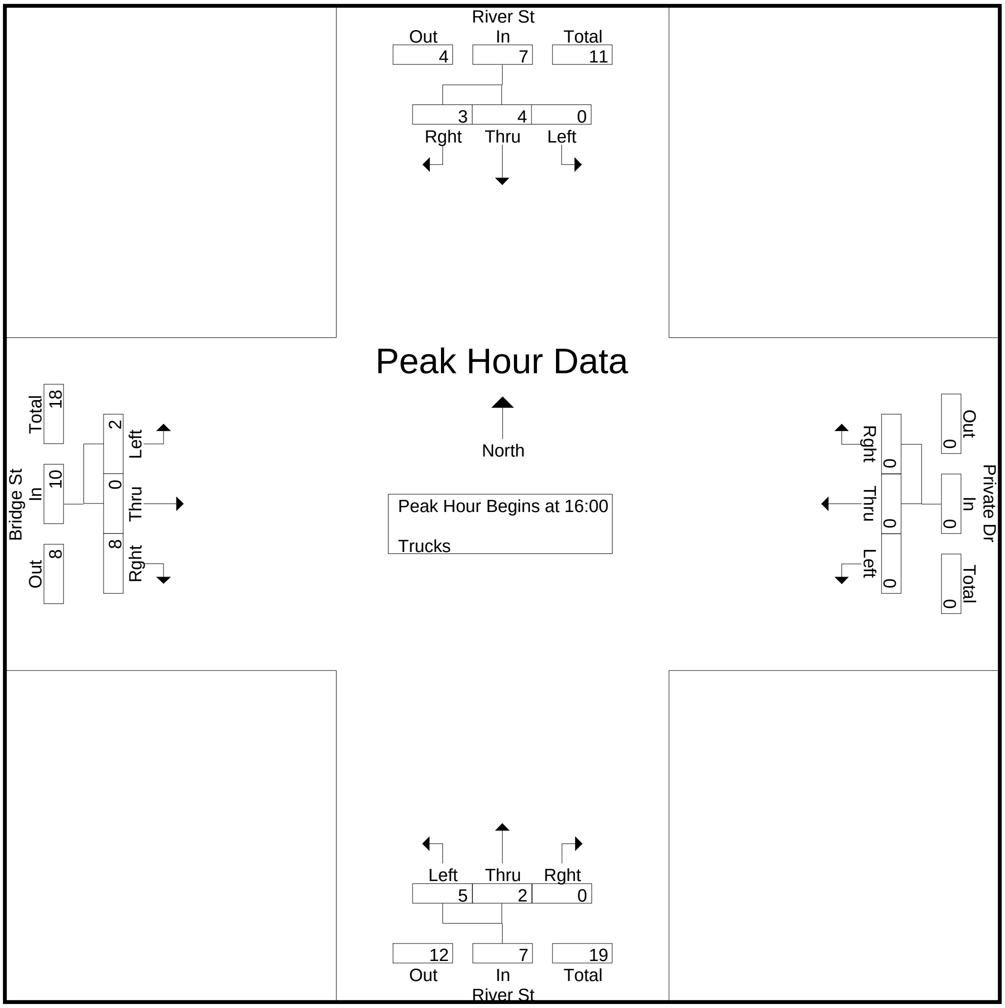
Groups Printed- Trucks

	River St From North				Private Dr From East				River St From South				Bridge St From West						
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Exclu. Total	Inclu. Total	Int. Total
16:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	3	3
16:15	0	2	1	0	0	0	0	0	0	1	0	0	2	0	3	0	0	9	9
16:30	0	2	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	6	6
16:45	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	6	6
Total	0	4	3	0	0	0	0	0	5	2	0	0	2	0	8	0	0	24	24
17:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2
17:15	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	4	4
17:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	1	2	0	0	0	0	0	2	0	0	0	2	0	1	0	0	8	8
18:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	2
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	2	0	1	0	0	4	4
Grand Total	0	5	5	0	0	0	0	0	8	2	0	0	6	0	10	0	0	36	36
Apprch %	0	50	50		0	0	0		80	20	0		37.5	0	62.5				
Total %	0	13.9	13.9		0	0	0		22.2	5.6	0		16.7	0	27.8		0	100	

	River St From North				Private Dr From East				River St From South				Bridge St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
16:15	0	**2**	1	3	0	0	0	0	0	**1**	0	1	**2**	0	**3**	**5**	**9**
16:30	0	2	**2**	**4**	0	0	0	0	0	1	0	1	0	0	1	1	6
16:45	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	0	3	3	6
Total Volume	0	4	3	7	0	0	0	0	5	2	0	7	2	0	8	10	24
% App. Total	0	57.1	42.9		0	0	0		71.4	28.6	0		20	0	80		
PHF	.000	.500	.375	.438	.000	.000	.000	.000	.417	.500	.000	.583	.250	.000	.667	.500	.667

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 2

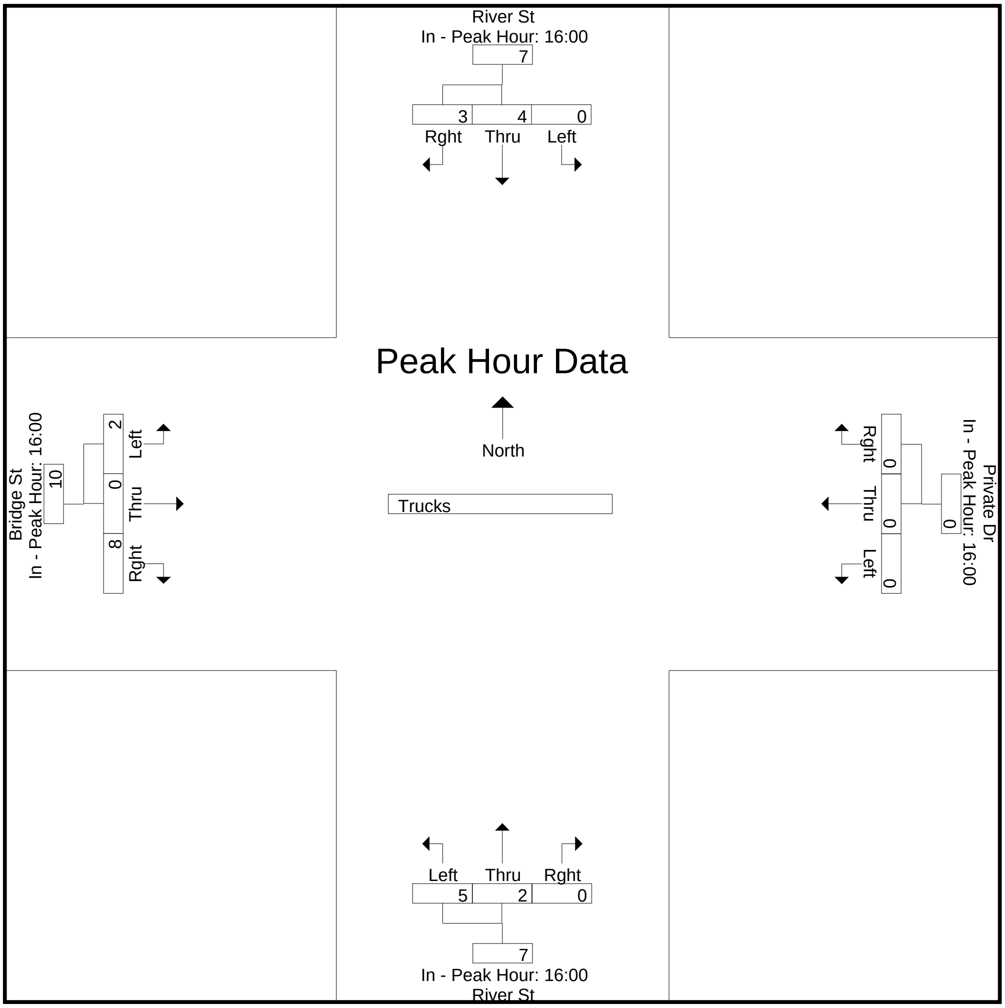


Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				16:00				16:00				16:00			
+0 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1
+15 mins.	0	**2**	1	3	0	0	0	0	0	**1**	0	1	**2**	0	**3**	**5**
+30 mins.	0	2	**2**	**4**	0	0	0	0	0	1	0	1	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	0	3	3
Total Volume	0	4	3	7	0	0	0	0	5	2	0	7	2	0	8	10
% App. Total	0	57.1	42.9		0	0	0		71.4	28.6	0		20	0	80	
PHF	.000	.500	.375	.438	.000	.000	.000	.000	.417	.500	.000	.583	.250	.000	.667	.500

N/S Street : River Street
E/W Street: Bridge St / Driveway
City/State : Beverly, MA
Weather : Cloudy

File Name : 14850005
Site Code : 14850005
Start Date : 10/28/2010
Page No : 3



Appendix B

Accident Data Summary

City of Beverly, MA
Beverly Depot

Rantoul Street at Railroad Avenue

Accident Summary

	Total	Percent
Collision Type		
Single Vehicle Crash	7	8.1%
Rear-End	27	31.4%
Angle	30	34.9%
Sideswipe, Same Direction	18	20.9%
Sideswipe, Opposite Direction	3	3.5%
Head on		0.0%
Rear to Rear		0.0%
Unknown	1	1.2%
TOTAL	86	100%

Pavement Conditions		
Dry	64	74.4%
Wet	16	18.6%
Snow	1	1.2%
Ice	2	2.3%
Slush	2	2.3%
Unknown	1	1.2%
TOTAL	86	100%

Accident Severity		
Property Damage Only	69	80.2%
Injury	16	18.6%
Fatal	1	1.2%
TOTAL	86	100%

Collision Event		
Pedestrian		0.0%
Cyclist	2	100.0%
TOTAL	2	100%

City of Beverly, MA
Beverly Depot

Pleasant Street at Rantoul Street

Accident Summary

	Total	Percent
Collision Type		
Single Vehicle Crash		0.0%
Rear-End		0.0%
Angle	1	50.0%
Sideswipe, Same Direction	1	50.0%
Sideswipe, Opposite Direction		0.0%
Head on		0.0%
Rear to Rear		0.0%
Unknown		0.0%
TOTAL	2	100%
Pavement Conditions		
Dry	1	50.0%
Wet	1	50.0%
Snow		0.0%
Ice		0.0%
Slush		0.0%
Unknown		0.0%
TOTAL	2	100%
Accident Severity		
Property Damage Only	2	100.0%
Injury		0.0%
Fatal		0.0%
TOTAL	2	100%
Collision Event		
Pedestrian		0.0%
Cyclist		0.0%
TOTAL	0	0%

Pleasant Street at Park Street

Accident Summary

	Total	Percent
Collision Type		
Single Vehicle Crash		0.0%
Rear-End		0.0%
Angle	1	50.0%
Sideswipe, Same Direction	1	50.0%
Sideswipe, Opposite Direction		0.0%
Head on		0.0%
Rear to Rear		0.0%
Unknown		0.0%
TOTAL	2	100%
Pavement Conditions		
Dry	1	50.0%
Wet		0.0%
Snow	1	50.0%
Ice		0.0%
Slush		0.0%
Unknown		0.0%
TOTAL	2	100%
Accident Severity		
Property Damage Only	2	100.0%
Injury		0.0%
Fatal		0.0%
TOTAL	2	100%
Collision Event		
Pedestrian		0.0%
Cyclist		0.0%
TOTAL	0	0%

City of Beverly, MA
Beverly Depot

Pleasant Street at River Street
Accident Summary

	Total	Percent
Collision Type		
Single Vehicle Crash		0.0%
Rear-End		0.0%
Angle	2	66.7%
Sideswipe, Same Direction	1	33.3%
Sideswipe, Opposite Direction		0.0%
Head on		0.0%
Rear to Rear		0.0%
Unknown		0.0%
TOTAL	3	100%

Pavement Conditions		
Dry	1	33.3%
Wet	2	66.7%
Snow		0.0%
Ice		0.0%
Slush		0.0%
Unknown		0.0%
TOTAL	3	100%

Accident Severity		
Property Damage Only	3	100.0%
Injury		0.0%
Fatal		0.0%
TOTAL	3	100%

Collision Event		
Pedestrian		0.0%
Cyclist		0.0%
TOTAL	0	0%

City of Beverly, MA
Beverly Depot

River Street at Bridge Street
Accident Summary

	Total	Percent
Collision Type		
Single Vehicle Crash	6	31.6%
Rear-End	2	10.5%
Angle	6	31.6%
Sideswipe, Same Direction	4	21.1%
Sideswipe, Opposite Direction		0.0%
Head on		0.0%
Rear to Rear	1	5.3%
Unknown		0.0%
TOTAL	19	100%

Pavement Conditions		
Dry	16	84.2%
Wet	1	5.3%
Snow		0.0%
Ice	1	5.3%
Slush		0.0%
Unknown	1	5.3%
TOTAL	19	100%

Accident Severity		
Property Damage Only	17	89.5%
Injury	2	10.5%
Fatal		0.0%
TOTAL	19	100%

Collision Event		
Pedestrian	1	50.0%
Cyclist		0.0%
TOTAL	1	50%

Appendix C

MassDOT Intersection Crash Worksheets

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Beverly

COUNT DATE : Oct-10

DISTRICT : 4

UNSIGNALIZED : ☒

SIGNALIZED : ☐

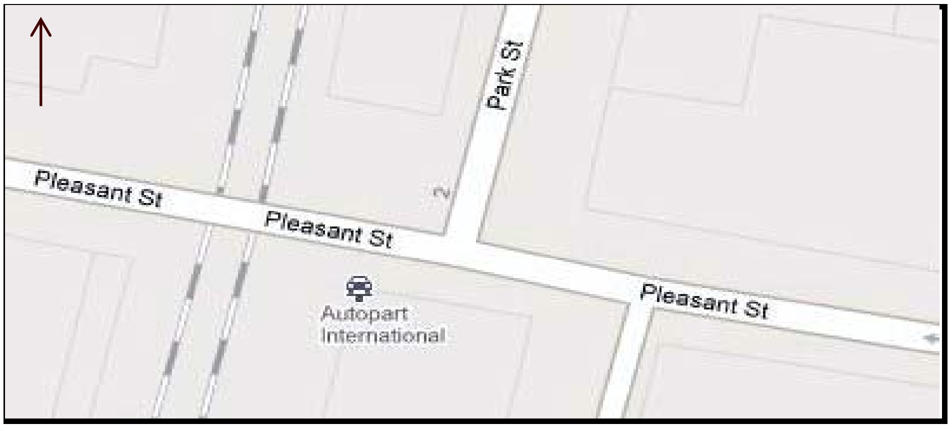
~ INTERSECTION DATA ~

MAJOR STREET : Pleasant Street

MINOR STREET(S) : Park Street

INTERSECTION DIAGRAM

(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	S	W	N	E		
PEAK HOURLY VOLUMES (AM/PM) :	87	137	38	200		**462**

" K " FACTOR :	**0.917**	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :	**504**
TOTAL # OF CRASHES :	2	# OF YEARS : 3	AVERAGE # OF CRASHES PER YEAR (**A**) : **0.67**

CRASH RATE CALCULATION : **3.63**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Beverly

COUNT DATE : Oct-10

DISTRICT : 4

UNSIGNALIZED : ☒

SIGNALIZED : ☐

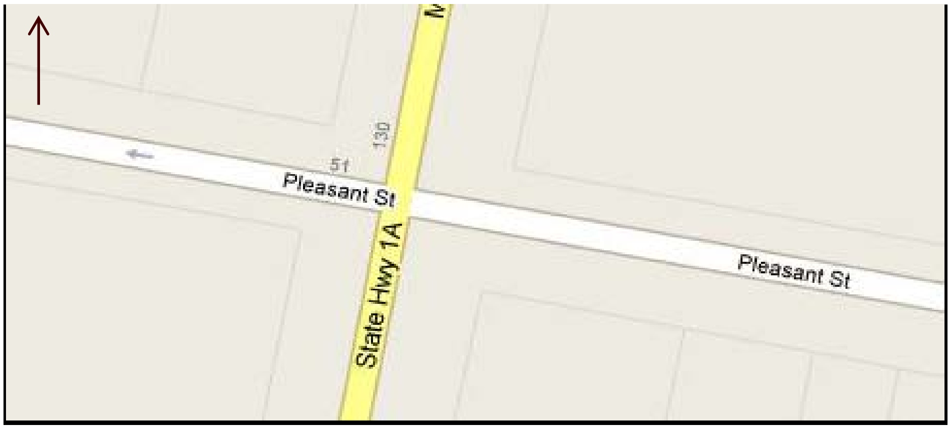
~ INTERSECTION DATA ~

MAJOR STREET : Pleasant Street

MINOR STREET(S) : Rantoul Street (Route 1A)

INTERSECTION DIAGRAM

(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	S	W	N			
PEAK HOURLY VOLUMES (AM/PM) :	680	38	464			1,182

" K " FACTOR : 0.917

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 1,289

TOTAL # OF CRASHES : 2

# OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : 0.67

CRASH RATE CALCULATION : 1.42

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Beverly

COUNT DATE : Oct-10

DISTRICT : 4

UNSIGNALIZED : ☒

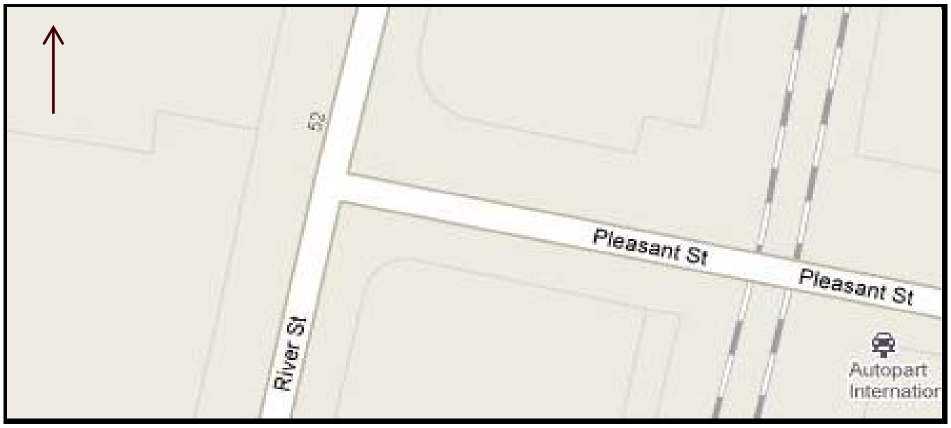
SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Pleasant Street

MINOR STREET(S) : River Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	S	W	N			
PEAK HOURLY VOLUMES (AM/PM) :	531	247	173			**951**

" K " FACTOR : **0.917**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **1,037**

TOTAL # OF CRASHES : 3

# OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.00**

CRASH RATE CALCULATION : **2.64**

$$RATE = \frac{(A * 1,000,000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Beverly

COUNT DATE : Oct-10

DISTRICT : 4

UNSIGNALIZED : x

SIGNALIZED :

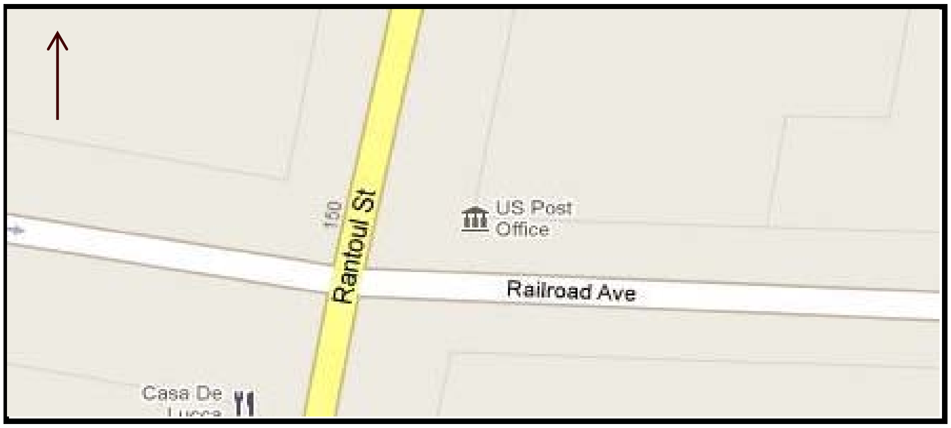
~ INTERSECTION DATA ~

MAJOR STREET : Rantoul Street (Route 1A)

MINOR STREET(S) : Railroad Avenue

INTERSECTION DIAGRAM

(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	S	W	N	E		
PEAK HOURLY VOLUMES (AM/PM) :	611	88	411	290		**1,400**

" K " FACTOR : **0.917**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **1,527**

TOTAL # OF CRASHES : 86

# OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **28.67**

CRASH RATE CALCULATION : **51.44**

$$RATE = \frac{(A * 1,000,000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Beverly

COUNT DATE : Oct-10

DISTRICT : 4

UNSIGNALIZED : x

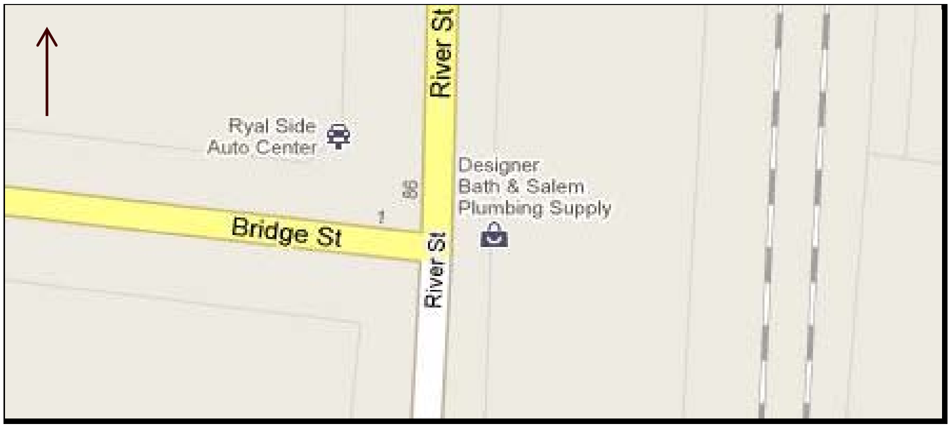
SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : River Street

MINOR STREET(S) : Bridge Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	S	W	N			
PEAK HOURLY VOLUMES (AM/PM) :	562	465	503			**1,530**

" K " FACTOR : **0.917**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **1,668**

TOTAL # OF CRASHES : 19

# OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **6.33**

CRASH RATE CALCULATION : **10.40**

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments :

Project Title & Date:

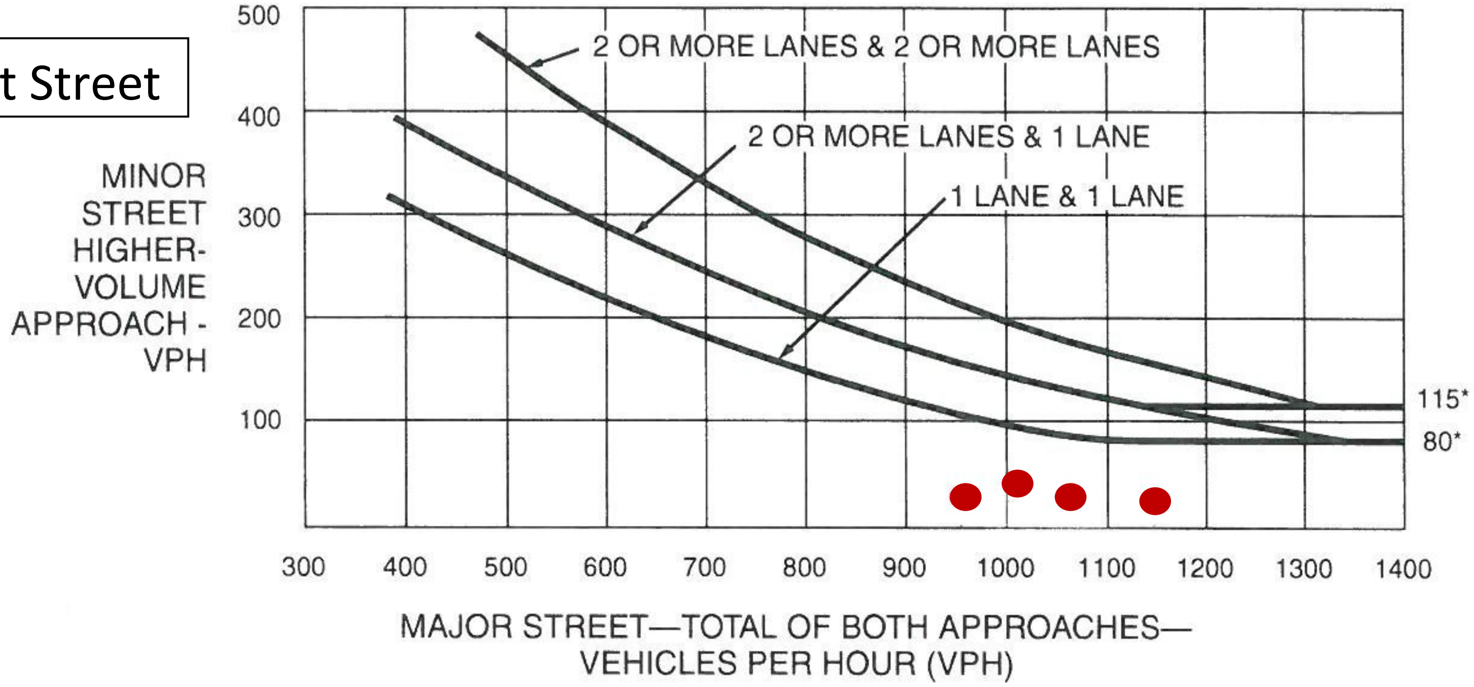
Appendix D

Intersection Traffic Signal Warrant Analysis

1

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

Pleasant Street

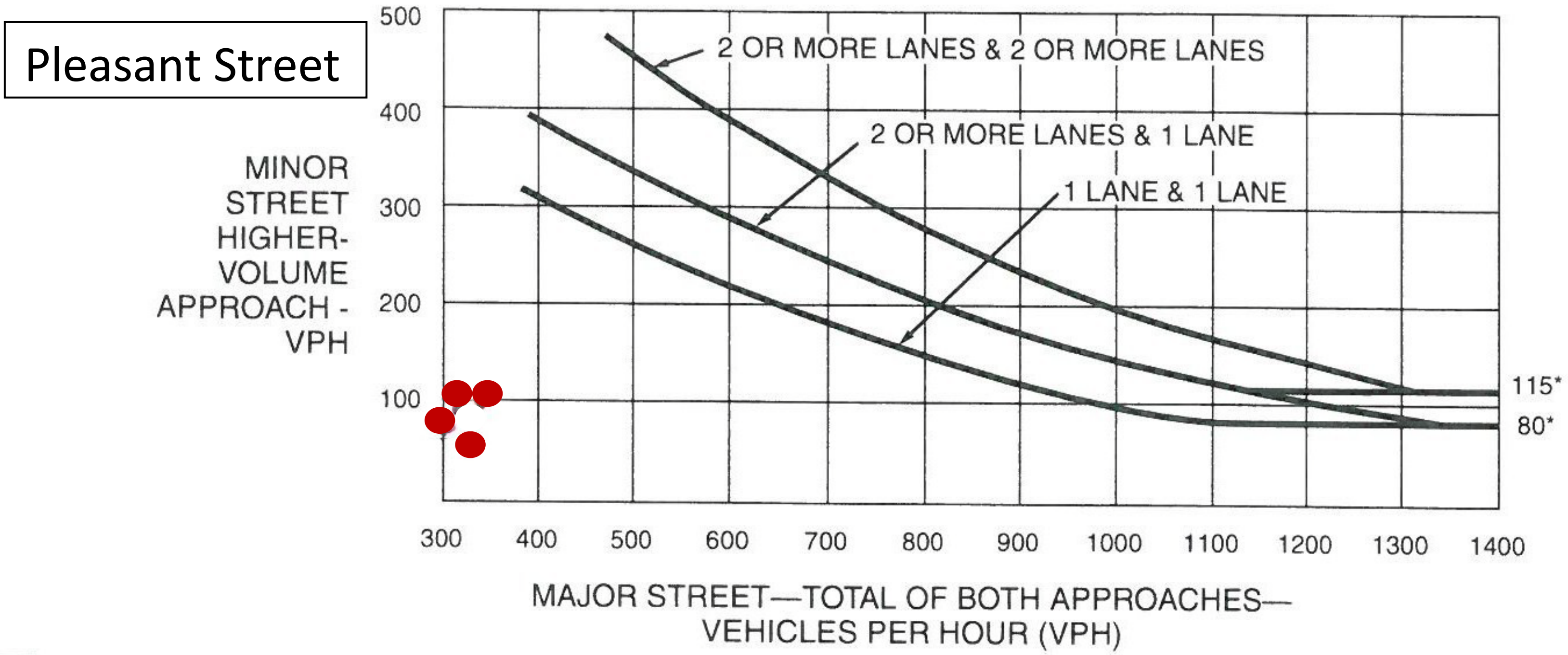


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Rantoul Street

2

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

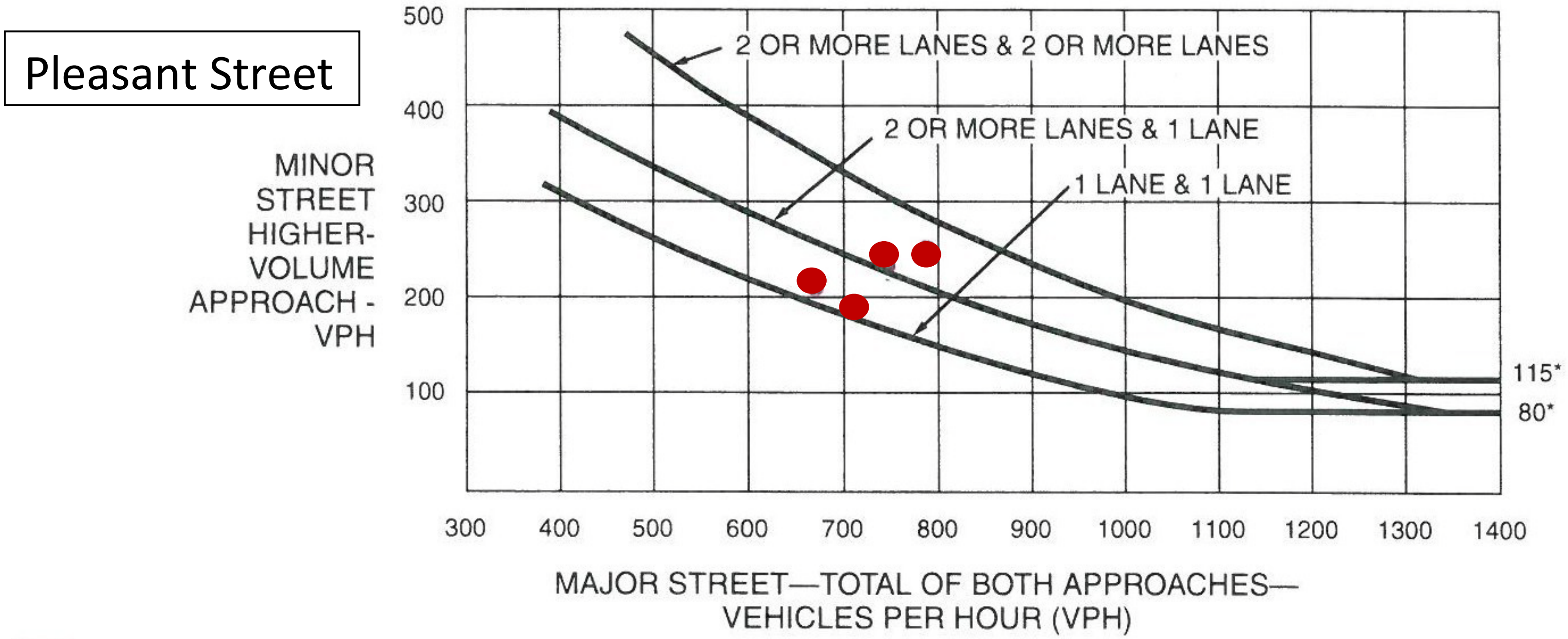


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Court St. / Park St.

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

3

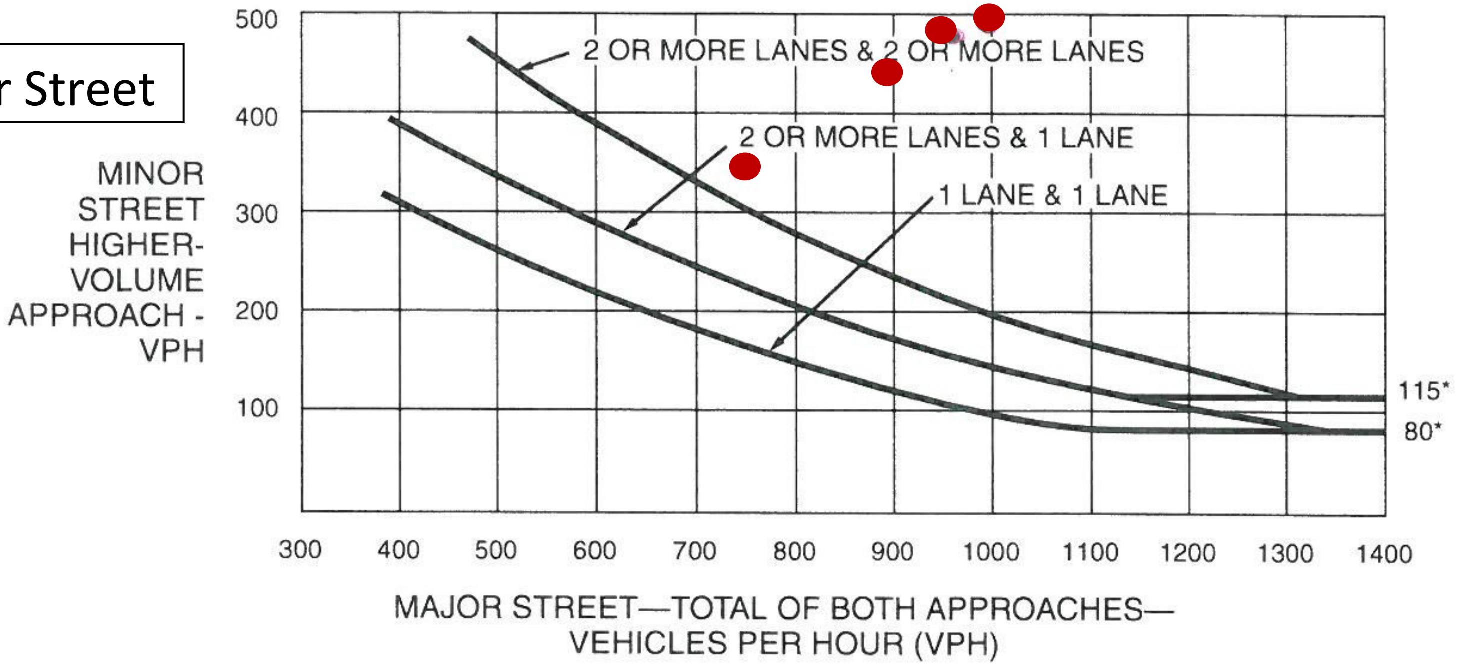


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

River Street

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

River Street



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Bridge Street

4

APPENDIX E

SYNCHRO REPORTS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰↑↱			↰↑			↑↱	
Volume (vph)	0	0	0	5	26	9	101	436	0	0	435	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.969						0.996	
Flt Protected					0.994			0.991				
Satd. Flow (prot)	0	0	0	0	1680	0	0	1711	0	0	1704	0
Flt Permitted					0.994			0.991				
Satd. Flow (perm)	0	0	0	0	1680	0	0	1711	0	0	1704	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			590			226	
Travel Time (s)		4.1			6.9			16.1			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	2%	2%	2%	0%
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	5	28	10	110	474	0	0	473	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	43	0	0	584	0	0	488	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 71.4% ICU Level of Service C
Analysis Period (min) 15

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	155	0	10	7	146	9	1	3	0	0	9	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992						0.881	
Flt Protected		0.955			0.998			0.988				
Satd. Flow (prot)	0	1786	0	0	1704	0	0	1877	0	0	1497	0
Flt Permitted		0.955			0.998			0.988				
Satd. Flow (perm)	0	1786	0	0	1704	0	0	1877	0	0	1497	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			185	
Travel Time (s)		7.5			4.1			5.7			5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	0%	0%	1%	8%	2%	2%	2%	2%	0%	3%
Parking (#/hr)					0						0	
Adj. Flow (vph)	168	0	11	8	159	10	1	3	0	0	10	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	177	0	0	4	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 35.0% ICU Level of Service A
Analysis Period (min) 15

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			↱			↰	
Volume (vph)	62	58	71	11	0	33	0	446	5	21	371	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.950			0.899			0.999				
Flt Protected		0.984			0.988						0.997	
Satd. Flow (prot)	0	1559	0	0	1549	0	0	1692	0	0	1687	0
Flt Permitted		0.984			0.988						0.997	
Satd. Flow (perm)	0	1559	0	0	1549	0	0	1692	0	0	1687	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		151			390			226			290	
Travel Time (s)		4.1			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	3%	0%	0%	0%	2%	3%	0%	4%	3%	2%
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	67	63	77	12	0	36	0	485	5	23	403	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	48	0	0	490	0	0	426	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 65.2% ICU Level of Service C

Analysis Period (min) 15

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱			↰
Volume (vph)	19	177	240	10	117	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.995			
Flt Protected	0.995					0.988
Satd. Flow (prot)	1864	0	2079	0	0	2096
Flt Permitted	0.995					0.988
Satd. Flow (perm)	1864	0	2079	0	0	2096
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	3%	5%	3%	1%
Adj. Flow (vph)	21	192	261	11	127	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	0	272	0	0	515
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 60.5% ICU Level of Service B

Analysis Period (min) 15

8: Bridge Street & River Street

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↓↳	
Volume (vph)	133	334	222	271	274	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.953	
Flt Protected	0.950			0.978		
Satd. Flow (prot)	1668	1492	0	2063	2025	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1668	1492	0	2063	2025	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%
Adj. Flow (vph)	145	363	241	295	298	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	363	0	536	458	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15

Lanes, Volumes, Timings
1: Pleasant Street & Rantoul Street

11/19/2010

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations					✥			↰			↱	
Volume (vph)	0	0	0	4	15	19	65	408	0	0	674	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.931						0.996	
Flt Protected					0.995			0.993				
Satd. Flow (prot)	0	0	0	0	1600	0	0	1715	0	0	1720	0
Flt Permitted					0.995			0.993				
Satd. Flow (perm)	0	0	0	0	1600	0	0	1715	0	0	1720	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			590			226	
Travel Time (s)		4.1			6.9			16.1			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	4	16	21	71	443	0	0	733	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	41	0	0	514	0	0	754	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 81.9% ICU Level of Service D
Analysis Period (min) 15

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			↰			↳	
Volume (vph)	199	0	5	4	124	11	21	17	0	0	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.989						0.865	
Flt Protected		0.953			0.999			0.973				
Satd. Flow (prot)	0	1823	0	0	1706	0	0	1867	0	0	1494	0
Flt Permitted		0.953			0.999			0.973				
Satd. Flow (perm)	0	1823	0	0	1706	0	0	1867	0	0	1494	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			185	
Travel Time (s)		7.5			4.1			5.7			5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0						0	
Adj. Flow (vph)	216	0	5	4	135	12	23	18	0	0	0	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	0	0	151	0	0	41	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 39.8% ICU Level of Service A
Analysis Period (min) 15

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			↱			↰	
Volume (vph)	64	116	115	14	0	74	0	404	15	50	572	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947			0.886			0.995				
Flt Protected		0.989			0.992						0.996	
Satd. Flow (prot)	0	1617	0	0	1518	0	0	1718	0	0	1720	0
Flt Permitted		0.989			0.992						0.996	
Satd. Flow (perm)	0	1617	0	0	1518	0	0	1718	0	0	1720	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		151			390			226			290	
Travel Time (s)		4.1			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	70	126	125	15	0	80	0	439	16	54	622	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	321	0	0	95	0	0	455	0	0	676	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 96.3% ICU Level of Service F
Analysis Period (min) 15

6: Pleasant Street & River Street

	↙	↖	↑	↗	↘	↓
Lane Group	**WBL**	**WBR**	**NBT**	**NBR**	**SBL**	**SBT**
Lane Configurations	Y		↱			↰
Volume (vph)	39	213	159	17	173	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886		0.987			
Flt Protected	0.992					0.984
Satd. Flow (prot)	1874	0	2104	0	0	2098
Flt Permitted	0.992					0.984
Satd. Flow (perm)	1874	0	2104	0	0	2098
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	232	173	18	188	400
Shared Lane Traffic (%)						
Lane Group Flow (vph)	274	0	191	0	0	588
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15

8: Bridge Street & River Street

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰	↱	
Volume (vph)	140	373	321	153	323	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.941	
Flt Protected	0.950			0.967		
Satd. Flow (prot)	1668	1492	0	2062	2006	0
Flt Permitted	0.950			0.967		
Satd. Flow (perm)	1668	1492	0	2062	2006	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	405	349	166	351	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	405	0	515	623	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 75.8% ICU Level of Service D

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Configurations					✥			↰↑			↑↱	
Volume (vph)	0	0	0	6	28	10	112	481	0	0	480	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.969						0.996	
Flt Protected					0.993			0.991				
Satd. Flow (prot)	0	0	0	0	1678	0	0	1711	0	0	1704	0
Flt Permitted					0.993			0.991				
Satd. Flow (perm)	0	0	0	0	1678	0	0	1711	0	0	1704	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			590			226	
Travel Time (s)		4.1			6.9			16.1			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	2%	2%	2%	0%
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	7	30	11	122	523	0	0	522	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	48	0	0	645	0	0	539	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 77.5% ICU Level of Service D
Analysis Period (min) 15

Lanes, Volumes, Timings
2: Pleasant Street & Park Street

11/19/2010

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	171	0	11	7	161	10	1	3	0	0	10	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992						0.881	
Flt Protected		0.955			0.998			0.988				
Satd. Flow (prot)	0	1786	0	0	1704	0	0	1877	0	0	1497	0
Flt Permitted		0.955			0.998			0.988				
Satd. Flow (perm)	0	1786	0	0	1704	0	0	1877	0	0	1497	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			175	
Travel Time (s)		7.5			4.1			5.7			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	0%	0%	1%	8%	2%	2%	2%	2%	0%	3%
Parking (#/hr)					0						0	
Adj. Flow (vph)	186	0	12	8	175	11	1	3	0	0	11	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	194	0	0	4	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Lanes, Volumes, Timings
3: Railroad Ave & Rantoul Street

11/19/2010

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	69	64	79	12	0	36	0	492	6	24	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99						1.00				
Frt		0.950			0.899			0.998				
Flt Protected		0.984			0.988						0.997	
Satd. Flow (prot)	0	1546	0	0	1549	0	0	1690	0	0	1687	0
Flt Permitted		0.872			0.916						0.964	
Satd. Flow (perm)	0	1370	0	0	1436	0	0	1690	0	0	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			39			2				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		140			390			226			290	
Travel Time (s)		3.8			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	3%	0%	0%	0%	2%	3%	0%	4%	3%	2%
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	75	70	86	13	0	39	0	535	7	26	446	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	0	0	52	0	0	542	0	0	472	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100			100		20	100	
Trailing Detector (ft)	0	0		0	0			0		0	0	
Detector 1 Position(ft)	0	0		0	0			0		0	0	
Detector 1 Size(ft)	20	6		20	6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm						Perm		
Protected Phases		4			8			2			6	

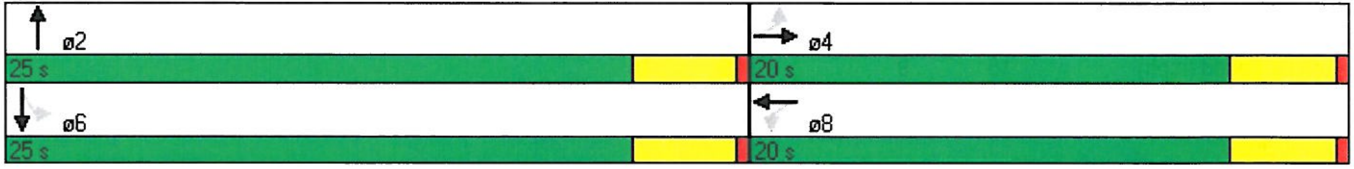
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0			20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	0.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	44.4%	44.4%	0.0%	44.4%	44.4%	0.0%	0.0%	55.6%	0.0%	55.6%	55.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0			21.0		21.0	21.0	
Yellow Time (s)	3.5	3.5		3.5	3.5			3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5			0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		9.7			9.7			20.8			20.8	
Actuated g/C Ratio		0.28			0.28			0.59			0.59	
v/c Ratio		0.54			0.12			0.54			0.49	
Control Delay		12.9			6.1			10.0			9.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.9			6.1			10.0			9.2	
LOS		B			A			B			A	
Approach Delay		12.9			6.1			10.0			9.2	
Approach LOS		B			A			B			A	
90th %ile Green (s)	15.8	15.8		15.8	15.8			21.0		21.0	21.0	
90th %ile Term Code	Gap	Gap		Hold	Hold			Max		Max	Max	
70th %ile Green (s)	11.9	11.9		11.9	11.9			21.0		21.0	21.0	
70th %ile Term Code	Gap	Gap		Hold	Hold			Max		Hold	Hold	
50th %ile Green (s)	9.4	9.4		9.4	9.4			16.1		16.1	16.1	
50th %ile Term Code	Gap	Gap		Hold	Hold			Gap		Hold	Hold	
30th %ile Green (s)	7.4	7.4		7.4	7.4			15.0		15.0	15.0	
30th %ile Term Code	Gap	Gap		Hold	Hold			Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0			22.0		22.0	22.0	
10th %ile Term Code	Skip	Skip		Skip	Skip			Dwell		Dwell	Dwell	
Stops (vph)		116			18			317			269	
Fuel Used(gal)		1			0			3			3	
CO Emissions (g/hr)		88			20			223			204	
NOx Emissions (g/hr)		17			4			43			40	
VOC Emissions (g/hr)		20			5			52			47	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		22			2			63			53	
Queue Length 95th (ft)		72			18			#189			157	
Internal Link Dist (ft)		60			310			146			210	
Turn Bay Length (ft)												
Base Capacity (vph)		688			701			1116			1077	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.07			0.49			0.44	

Intersection Summary

Area Type: CBD
Cycle Length: 45
Actuated Cycle Length: 35.1
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 44.8
70th %ile Actuated Cycle: 40.9
50th %ile Actuated Cycle: 33.5
30th %ile Actuated Cycle: 30.4
10th %ile Actuated Cycle: 26
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Railroad Ave & Rantoul Street



	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱			↰
Volume (vph)	21	196	265	11	130	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.995			
Flt Protected	0.995					0.988
Satd. Flow (prot)	1864	0	2079	0	0	2096
Flt Permitted	0.995					0.988
Satd. Flow (perm)	1864	0	2079	0	0	2096
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	3%	5%	3%	1%
Adj. Flow (vph)	23	213	288	12	141	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	236	0	300	0	0	569
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 65.8% ICU Level of Service C
Analysis Period (min) 15

8: Bridge Street & River Street

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	146	368	246	300	303	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.953	
Flt Protected	0.950			0.978		
Satd. Flow (prot)	1668	1492	0	2063	2025	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1668	1492	0	2063	2025	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%
Adj. Flow (vph)	159	400	267	326	329	176
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	400	0	593	505	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other

Control Type: Unsignalized

Intersection Capacity Utilization 73.3% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
1: Pleasant Street & Rantoul Street

11/19/2010

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					✥			↰			↳	
Volume (vph)	0	0	0	5	17	21	72	451	0	0	745	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.932						0.996	
Flt Protected					0.995			0.993				
Satd. Flow (prot)	0	0	0	0	1601	0	0	1715	0	0	1720	0
Flt Permitted					0.995			0.993				
Satd. Flow (perm)	0	0	0	0	1601	0	0	1715	0	0	1720	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			590			226	
Travel Time (s)		4.1			6.9			16.1			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	5	18	23	78	490	0	0	810	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	46	0	0	568	0	0	833	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 89.1% ICU Level of Service E
Analysis Period (min) 15

2: Pleasant Street & Park Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	220	0	6	5	137	12	24	19	0	0	0	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.989						0.865	
Flt Protected		0.954			0.999			0.973				
Satd. Flow (prot)	0	1823	0	0	1706	0	0	1867	0	0	1494	0
Flt Permitted		0.954			0.999			0.973				
Satd. Flow (perm)	0	1823	0	0	1706	0	0	1867	0	0	1494	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			185	
Travel Time (s)		7.5			4.1			5.7			5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0						0	
Adj. Flow (vph)	239	0	7	5	149	13	26	21	0	0	0	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	246	0	0	167	0	0	47	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 42.3% ICU Level of Service A
Analysis Period (min) 15

	↰	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	71	128	127	16	0	83	0	446	17	56	632	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99						1.00				
Frt		0.947			0.886			0.995				
Flt Protected		0.989			0.992						0.996	
Satd. Flow (prot)	0	1603	0	0	1518	0	0	1717	0	0	1720	0
Flt Permitted		0.907			0.940						0.934	
Satd. Flow (perm)	0	1470	0	0	1438	0	0	1717	0	0	1613	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			90			6				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		151			390			226			290	
Travel Time (s)		4.1			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	77	139	138	17	0	90	0	485	18	61	687	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	0	0	107	0	0	503	0	0	748	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100			100		20	100	
Trailing Detector (ft)	0	0		0	0			0		0	0	
Detector 1 Position(ft)	0	0		0	0			0		0	0	
Detector 1 Size(ft)	20	6		20	6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		

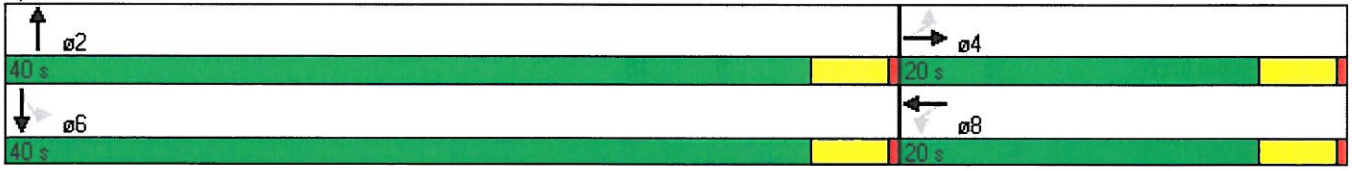
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0			20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%	0.0%	66.7%	0.0%	66.7%	66.7%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0			36.0		36.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5			3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5			0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		14.4			14.4			29.7			29.7	
Actuated g/C Ratio		0.27			0.27			0.57			0.57	
v/c Ratio		0.80			0.23			0.51			0.82	
Control Delay		33.2			7.6			9.1			18.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		33.2			7.6			9.1			18.4	
LOS		C			A			A			B	
Approach Delay		33.2			7.6			9.1			18.4	
Approach LOS		C			A			A			B	
90th %ile Green (s)	16.0	16.0		16.0	16.0			36.0		36.0	36.0	
90th %ile Term Code	Max	Max		Hold	Hold			Hold		Max	Max	
70th %ile Green (s)	16.0	16.0		16.0	16.0			36.0		36.0	36.0	
70th %ile Term Code	Max	Max		Hold	Hold			Hold		Max	Max	
50th %ile Green (s)	16.0	16.0		16.0	16.0			32.3		32.3	32.3	
50th %ile Term Code	Max	Max		Hold	Hold			Hold		Gap	Gap	
30th %ile Green (s)	14.1	14.1		14.1	14.1			25.6		25.6	25.6	
30th %ile Term Code	Gap	Gap		Hold	Hold			Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0			20.1		20.1	20.1	
10th %ile Term Code	Gap	Gap		Hold	Hold			Dwell		Dwell	Dwell	
Stops (vph)		225			27			245			491	
Fuel Used(gal)		3			1			3			6	
CO Emissions (g/hr)		243			41			188			431	
NOx Emissions (g/hr)		47			8			37			84	
VOC Emissions (g/hr)		56			9			44			100	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		92			4			88			175	
Queue Length 95th (ft)		#236			36			150			#334	
Internal Link Dist (ft)		71			310			146			210	
Turn Bay Length (ft)												
Base Capacity (vph)		498			514			1217			1142	
Starvation Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.71			0.21			0.41			0.65	

Intersection Summary

Area Type: CBD
Cycle Length: 60
Actuated Cycle Length: 52.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 18.1 Intersection LOS: B
Intersection Capacity Utilization 104.8% ICU Level of Service G
Analysis Period (min) 15
90th %ile Actuated Cycle: 60
70th %ile Actuated Cycle: 60
50th %ile Actuated Cycle: 56.3
30th %ile Actuated Cycle: 47.7
10th %ile Actuated Cycle: 38.1
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Railroad Ave & Rantoul Street



	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱			↰
Volume (vph)	43	407	176	19	192	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.987			
Flt Protected	0.995					0.984
Satd. Flow (prot)	1863	0	2104	0	0	2098
Flt Permitted	0.995					0.984
Satd. Flow (perm)	1863	0	2104	0	0	2098
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	442	191	21	209	442
Shared Lane Traffic (%)						
Lane Group Flow (vph)	489	0	212	0	0	651
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 80.0% ICU Level of Service D
Analysis Period (min) 15

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
	↗	↘	↖	↑	↓	↙
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	154	412	355	169	357	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.941	
Flt Protected	0.950			0.967		
Satd. Flow (prot)	1668	1492	0	2062	2006	0
Flt Permitted	0.950			0.967		
Satd. Flow (perm)	1668	1492	0	2062	2006	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	448	386	184	388	300
Shared Lane Traffic (%)						
Lane Group Flow (vph)	167	448	0	570	688	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15

Lanes, Volumes, Timings
1: Pleasant Street & Rantoul Street

11/18/2010

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰↑↱			↰↑			↑↱	
Volume (vph)	0	0	0	8	31	10	109	484	0	0	505	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.973						0.998	
Flt Protected					0.992			0.991				
Satd. Flow (prot)	0	0	0	0	1684	0	0	1711	0	0	1707	0
Flt Permitted					0.992			0.991				
Satd. Flow (perm)	0	0	0	0	1684	0	0	1711	0	0	1707	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			339			226	
Travel Time (s)		4.1			6.9			9.2			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	2%	2%	2%	0%
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	9	34	11	118	526	0	0	549	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	54	0	0	644	0	0	556	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 78.3% ICU Level of Service D

Analysis Period (min) 15

2: Pleasant Street & Park Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	171	0	54	7	161	10	1	3	0	0	48	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.992						0.917	
Flt Protected		0.963			0.998			0.988				
Satd. Flow (prot)	0	1765	0	0	1704	0	0	1877	0	0	1571	0
Flt Permitted		0.963			0.998			0.988				
Satd. Flow (perm)	0	1765	0	0	1704	0	0	1877	0	0	1571	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			175	
Travel Time (s)		7.5			4.1			5.7			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	0%	0%	1%	8%	2%	2%	2%	2%	0%	3%
Parking (#/hr)					0						0	
Adj. Flow (vph)	186	0	59	8	175	11	1	3	0	0	52	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	194	0	0	4	0	0	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	CBD	
Control Type: Unsignalized		
Intersection Capacity Utilization 42.6%		ICU Level of Service A
Analysis Period (min) 15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	69	64	79	17	0	36	0	492	6	24	420	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99						1.00				
Frt		0.950			0.908			0.998				
Flt Protected		0.984			0.984						0.997	
Satd. Flow (prot)	0	1546	0	0	1558	0	0	1690	0	0	1687	0
Flt Permitted		0.870			0.900						0.964	
Satd. Flow (perm)	0	1367	0	0	1425	0	0	1690	0	0	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			39			2				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		140			390			226			290	
Travel Time (s)		3.8			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	3%	0%	0%	0%	2%	3%	0%	4%	3%	2%
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	75	70	86	18	0	39	0	535	7	26	457	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	0	0	57	0	0	542	0	0	483	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100			100		20	100	
Trailing Detector (ft)	0	0		0	0			0		0	0	
Detector 1 Position(ft)	0	0		0	0			0		0	0	
Detector 1 Size(ft)	20	6		20	6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm						Perm		
Protected Phases		4			8			2			6	

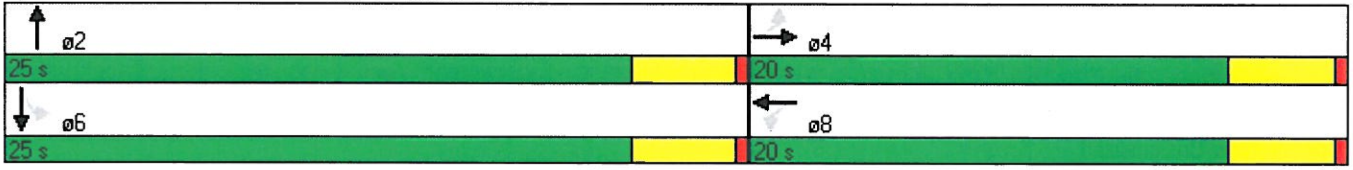
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0			20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	0.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	44.4%	44.4%	0.0%	44.4%	44.4%	0.0%	0.0%	55.6%	0.0%	55.6%	55.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0			21.0		21.0	21.0	
Yellow Time (s)	3.5	3.5		3.5	3.5			3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5			0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		9.7			9.7			20.7			20.7	
Actuated g/C Ratio		0.28			0.28			0.59			0.59	
v/c Ratio		0.53			0.13			0.54			0.50	
Control Delay		12.8			6.4			10.1			9.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.8			6.4			10.1			9.4	
LOS		B			A			B			A	
Approach Delay		12.8			6.4			10.1			9.4	
Approach LOS		B			A			B			A	
90th %ile Green (s)	15.9	15.9		15.9	15.9			21.0		21.0	21.0	
90th %ile Term Code	Gap	Gap		Hold	Hold			Max		Max	Max	
70th %ile Green (s)	12.0	12.0		12.0	12.0			21.0		21.0	21.0	
70th %ile Term Code	Gap	Gap		Hold	Hold			Max		Hold	Hold	
50th %ile Green (s)	9.4	9.4		9.4	9.4			16.1		16.1	16.1	
50th %ile Term Code	Gap	Gap		Hold	Hold			Gap		Hold	Hold	
30th %ile Green (s)	7.4	7.4		7.4	7.4			14.7		14.7	14.7	
30th %ile Term Code	Gap	Gap		Hold	Hold			Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0			22.0		22.0	22.0	
10th %ile Term Code	Skip	Skip		Skip	Skip			Dwell		Dwell	Dwell	
Stops (vph)		115			20			318			278	
Fuel Used(gal)		1			0			3			3	
CO Emissions (g/hr)		88			22			224			210	
NOx Emissions (g/hr)		17			4			44			41	
VOC Emissions (g/hr)		20			5			52			49	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		22			2			63			55	
Queue Length 95th (ft)		72			19			#191			163	
Internal Link Dist (ft)		60			310			146			210	
Turn Bay Length (ft)												
Base Capacity (vph)		687			696			1118			1079	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.08			0.48			0.45	

Intersection Summary

Area Type: CBD
Cycle Length: 45
Actuated Cycle Length: 35.1
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 70.7% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 44.9
70th %ile Actuated Cycle: 41
50th %ile Actuated Cycle: 33.5
30th %ile Actuated Cycle: 30.1
10th %ile Actuated Cycle: 26
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Railroad Ave & Rantoul Street



Lanes, Volumes, Timings
4: Rantoul Street &

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	0	0	8	593	486	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996	
Flt Protected				0.999		
Satd. Flow (prot)	1863	1863	0	1861	1855	0
Flt Permitted				0.999		
Satd. Flow (perm)	1863	1863	0	1861	1855	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	79			251	339	
Travel Time (s)	2.2			6.8	9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	9	645	528	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	654	544	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 40.9% ICU Level of Service A

Analysis Period (min) 15

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↱		↑↱			↰↑
Volume (vph)	21	196	265	14	170	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.993			
Flt Protected	0.995					0.985
Satd. Flow (prot)	1864	0	2074	0	0	2088
Flt Permitted	0.995					0.985
Satd. Flow (perm)	1864	0	2074	0	0	2088
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	3%	5%	3%	1%
Adj. Flow (vph)	23	213	288	15	185	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	236	0	303	0	0	613
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	146	397	246	300	314	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.954	
Flt Protected	0.950			0.978		
Satd. Flow (prot)	1668	1492	0	2063	2027	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1668	1492	0	2063	2027	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%
Adj. Flow (vph)	159	432	267	326	341	176
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	432	0	593	517	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15

1: Pleasant Street & Rantoul Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					✥			↰			↳	
Volume (vph)	0	0	0	5	17	21	72	482	0	0	745	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.932						0.996	
Flt Protected					0.995			0.994				
Satd. Flow (prot)	0	0	0	0	1617	0	0	1717	0	0	1704	0
Flt Permitted					0.995			0.994				
Satd. Flow (perm)	0	0	0	0	1617	0	0	1717	0	0	1704	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			339			226	
Travel Time (s)		4.1			6.9			9.2			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	2%	2%	2%	0%
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	5	18	23	78	524	0	0	810	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	46	0	0	602	0	0	833	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 90.9% ICU Level of Service E

Analysis Period (min) 15

2: Pleasant Street & Park Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	220	0	6	5	137	12	143	64	0	0	0	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.989						0.865	
Flt Protected		0.954			0.999			0.967				
Satd. Flow (prot)	0	1789	0	0	1698	0	0	1837	0	0	1465	0
Flt Permitted		0.954			0.999			0.967				
Satd. Flow (perm)	0	1789	0	0	1698	0	0	1837	0	0	1465	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			175	
Travel Time (s)		7.5			4.1			5.7			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	0%	0%	1%	8%	2%	2%	2%	2%	0%	3%
Parking (#/hr)					0						0	
Adj. Flow (vph)	239	0	7	5	149	13	155	70	0	0	0	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	246	0	0	167	0	0	225	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 52.3% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	71	128	127	16	0	83	0	467	27	56	632	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99						1.00				
Frt		0.947			0.886			0.993				
Flt Protected		0.989			0.992						0.996	
Satd. Flow (prot)	0	1550	0	0	1533	0	0	1682	0	0	1685	0
Flt Permitted		0.908			0.941						0.930	
Satd. Flow (perm)	0	1423	0	0	1454	0	0	1682	0	0	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			90			8				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		140			390			226			290	
Travel Time (s)		3.8			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	3%	0%	0%	0%	2%	3%	0%	4%	3%	2%
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	77	139	138	17	0	90	0	508	29	61	687	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	0	0	107	0	0	537	0	0	748	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100			100		20	100	
Trailing Detector (ft)	0	0		0	0			0		0	0	
Detector 1 Position(ft)	0	0		0	0			0		0	0	
Detector 1 Size(ft)	20	6		20	6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm						Perm		
Protected Phases		4			8			2			6	

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0			20.0		20.0	20.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	0.0	0.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%	0.0%	65.0%	0.0%	65.0%	65.0%	0.0%
Maximum Green (s)	17.0	17.0		17.0	17.0			35.0		35.0	35.0	
Yellow Time (s)	3.5	3.5		3.5	3.5			3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5			0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		15.0			15.0			30.4			30.4	
Actuated g/C Ratio		0.28			0.28			0.57			0.57	
v/c Ratio		0.81			0.23			0.56			0.84	
Control Delay		33.9			7.3			10.2			20.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		33.9			7.3			10.2			20.8	
LOS		C			A			B			C	
Approach Delay		33.9			7.3			10.2			20.8	
Approach LOS		C			A			B			C	
90th %ile Green (s)	17.0	17.0		17.0	17.0			35.0		35.0	35.0	
90th %ile Term Code	Max	Max		Hold	Hold			Hold		Max	Max	
70th %ile Green (s)	17.0	17.0		17.0	17.0			35.0		35.0	35.0	
70th %ile Term Code	Max	Max		Hold	Hold			Hold		Max	Max	
50th %ile Green (s)	17.0	17.0		17.0	17.0			35.0		35.0	35.0	
50th %ile Term Code	Max	Max		Hold	Hold			Hold		Max	Max	
30th %ile Green (s)	14.5	14.5		14.5	14.5			27.1		27.1	27.1	
30th %ile Term Code	Gap	Gap		Hold	Hold			Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		10.0	10.0			21.0		21.0	21.0	
10th %ile Term Code	Gap	Gap		Hold	Hold			Dwell		Dwell	Dwell	
Stops (vph)		228			26			277			495	
Fuel Used(gal)		4			1			3			7	
CO Emissions (g/hr)		245			40			212			456	
NOx Emissions (g/hr)		48			8			41			89	
VOC Emissions (g/hr)		57			9			49			106	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		100			4			102			188	
Queue Length 95th (ft)		#232			35			176			#410	
Internal Link Dist (ft)		60			310			146			210	
Turn Bay Length (ft)												
Base Capacity (vph)		499			534			1165			1088	

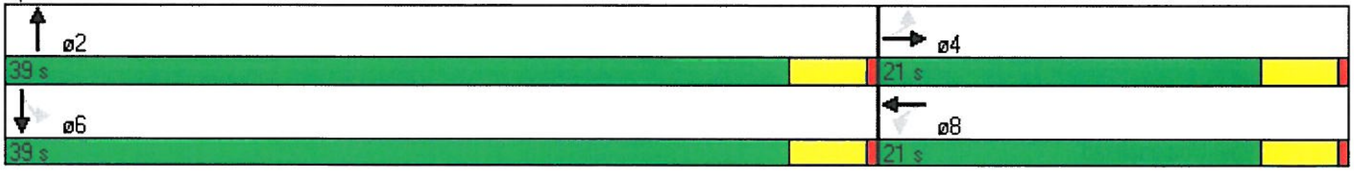
	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.71			0.20			0.46			0.69	

Intersection Summary

Area Type: CBD
Cycle Length: 60
Actuated Cycle Length: 53.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 106.7% ICU Level of Service G
Analysis Period (min) 15
90th %ile Actuated Cycle: 60
70th %ile Actuated Cycle: 60
50th %ile Actuated Cycle: 60
30th %ile Actuated Cycle: 49.6
10th %ile Actuated Cycle: 39

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Railroad Ave & Rantoul Street



	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	31	20	0	523	749	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	79			251	339	
Travel Time (s)	2.2			6.8	9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	22	0	568	814	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	22	0	568	814	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.4% ICU Level of Service A
Analysis Period (min) 15

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱			↰
Volume (vph)	52	346	176	19	192	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.883		0.987			
Flt Protected	0.993					0.984
Satd. Flow (prot)	1872	0	2059	0	0	2085
Flt Permitted	0.993					0.984
Satd. Flow (perm)	1872	0	2059	0	0	2085
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	3%	5%	3%	1%
Adj. Flow (vph)	57	376	191	21	209	442
Shared Lane Traffic (%)						
Lane Group Flow (vph)	433	0	212	0	0	651
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 76.7% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
8: Bridge Street & River Street

11/18/2010

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰	↱	
Volume (vph)	154	412	436	198	357	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.941	
Flt Protected	0.950			0.967		
Satd. Flow (prot)	1668	1492	0	2049	1998	0
Flt Permitted	0.950			0.967		
Satd. Flow (perm)	1668	1492	0	2049	1998	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%
Adj. Flow (vph)	167	448	474	215	388	300
Shared Lane Traffic (%)						
Lane Group Flow (vph)	167	448	0	689	688	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 88.7% ICU Level of Service E

Analysis Period (min) 15

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					✥			↰			↱	
Volume (vph)	0	0	0	4	15	19	65	439	0	0	674	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.931						0.996	
Flt Protected					0.995			0.994				
Satd. Flow (prot)	0	0	0	0	1600	0	0	1717	0	0	1720	0
Flt Permitted					0.995			0.994				
Satd. Flow (perm)	0	0	0	0	1600	0	0	1717	0	0	1720	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			339			226	
Travel Time (s)		4.1			6.9			9.2			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	4	16	21	71	477	0	0	733	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	41	0	0	548	0	0	754	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 83.7% ICU Level of Service E
Analysis Period (min) 15

2: Pleasant Street & Park Street

	↰	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	199	0	5	4	124	11	140	62	0	0	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.989						0.865	
Flt Protected		0.953			0.999			0.966				
Satd. Flow (prot)	0	1823	0	0	1706	0	0	1854	0	0	1494	0
Flt Permitted		0.953			0.999			0.966				
Satd. Flow (perm)	0	1823	0	0	1706	0	0	1854	0	0	1494	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			175	
Travel Time (s)		7.5			4.1			5.7			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)					0						0	
Adj. Flow (vph)	216	0	5	4	135	12	152	67	0	0	0	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	0	0	151	0	0	219	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 49.7% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	64	116	115	14	0	75	0	425	25	51	572	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947			0.886			0.993				
Flt Protected		0.989			0.992						0.996	
Satd. Flow (prot)	0	1617	0	0	1518	0	0	1715	0	0	1720	0
Flt Permitted		0.989			0.992						0.996	
Satd. Flow (perm)	0	1617	0	0	1518	0	0	1715	0	0	1720	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		140			390			226			290	
Travel Time (s)		3.8			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	70	126	125	15	0	82	0	462	27	55	622	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	321	0	0	97	0	0	489	0	0	677	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 98.3% ICU Level of Service F
Analysis Period (min) 15

4: Garage & Rantoul Street

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	31	20	0	473	678	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1608	1439	0	1693	1693	0
Flt Permitted	0.950					
Satd. Flow (perm)	1608	1439	0	1693	1693	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	79			251	339	
Travel Time (s)	2.2			6.8	9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	22	0	514	737	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	22	0	514	737	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: CBD
Control Type: Unsignalized
Intersection Capacity Utilization 49.6% ICU Level of Service A
Analysis Period (min) 15

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱			↰
Volume (vph)	48	323	159	17	173	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882		0.987			
Flt Protected	0.994					0.984
Satd. Flow (prot)	1869	0	2104	0	0	2098
Flt Permitted	0.994					0.984
Satd. Flow (perm)	1869	0	2104	0	0	2098
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	351	173	18	188	400
Shared Lane Traffic (%)						
Lane Group Flow (vph)	403	0	191	0	0	588
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15

8: Bridge Street & River Street

	↗	↘	↖	↑	↓	↙
Lane Group	**EBL**	**EBR**	**NBL**	**NBT**	**SBT**	**SBR**
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	140	373	402	182	323	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.941	
Flt Protected	0.950			0.967		
Satd. Flow (prot)	1668	1492	0	2062	2006	0
Flt Permitted	0.950			0.967		
Satd. Flow (perm)	1668	1492	0	2062	2006	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	405	437	198	351	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	405	0	635	623	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 81.9% ICU Level of Service D
Analysis Period (min) 15

Lanes, Volumes, Timings
1: Pleasant Street & Rantoul Street

11/18/2010

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					✥			↰			↱	
Volume (vph)	0	0	0	7	29	9	98	436	0	0	450	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.973						0.999	
Flt Protected					0.992			0.991				
Satd. Flow (prot)	0	0	0	0	1684	0	0	1711	0	0	1709	0
Flt Permitted					0.992			0.991				
Satd. Flow (perm)	0	0	0	0	1684	0	0	1711	0	0	1709	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		152			253			353			226	
Travel Time (s)		4.1			6.9			9.6			6.2	
Confl. Bikes (#/hr)						3						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	2%	2%	2%	0%
Parking (#/hr)					0			0			0	
Adj. Flow (vph)	0	0	0	8	32	10	107	474	0	0	489	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	50	0	0	581	0	0	493	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Stop			Free			Free	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 71.4% ICU Level of Service C

Analysis Period (min) 15

2: Pleasant Street & Park Street

11/18/2010

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↰			↳	
Volume (vph)	155	0	53	6	146	9	1	3	0	0	47	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.992						0.920	
Flt Protected		0.964			0.998			0.988				
Satd. Flow (prot)	0	1764	0	0	1704	0	0	1877	0	0	1577	0
Flt Permitted		0.964			0.998			0.988				
Satd. Flow (perm)	0	1764	0	0	1704	0	0	1877	0	0	1577	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		274			152			208			157	
Travel Time (s)		7.5			4.1			5.7			4.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	0%	0%	1%	8%	2%	2%	2%	2%	0%	3%
Parking (#/hr)					0						0	
Adj. Flow (vph)	168	0	58	7	159	10	1	3	0	0	51	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	226	0	0	176	0	0	4	0	0	125	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	0.97	1.14	1.14	1.12	1.14	1.14	0.97	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 40.0% ICU Level of Service A

Analysis Period (min) 15

3: Railroad Ave & Rantoul Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			↱			↰	
Volume (vph)	62	58	71	16	0	33	0	446	5	21	381	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.950			0.908			0.999				
Flt Protected		0.984			0.984						0.997	
Satd. Flow (prot)	0	1559	0	0	1558	0	0	1692	0	0	1687	0
Flt Permitted		0.984			0.984						0.997	
Satd. Flow (perm)	0	1559	0	0	1558	0	0	1692	0	0	1687	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		160			390			226			290	
Travel Time (s)		4.4			10.6			6.2			7.9	
Confl. Bikes (#/hr)			2						2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	3%	0%	0%	0%	2%	3%	0%	4%	3%	2%
Parking (#/hr)		0			0			0			0	
Adj. Flow (vph)	67	63	77	17	0	36	0	485	5	23	414	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	53	0	0	490	0	0	437	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14	1.14	1.12	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 63.8% ICU Level of Service B

Analysis Period (min) 15

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	19	177	240	10	157	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	16	12	12	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.995			
Flt Protected	0.995					0.985
Satd. Flow (prot)	1864	0	2079	0	0	2087
Flt Permitted	0.995					0.985
Satd. Flow (perm)	1864	0	2079	0	0	2087
Link Speed (mph)	25		25			25
Link Distance (ft)	274		233			600
Travel Time (s)	7.5		6.4			16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	3%	5%	3%	1%
Adj. Flow (vph)	21	192	261	11	171	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	0	272	0	0	559
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 62.7% ICU Level of Service B
Analysis Period (min) 15

	↗	↘	↖	↑	↓	↙
Lane Group	**EBL**	**EBR**	**NBL**	**NBT**	**SBT**	**SBR**
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	133	363	222	271	285	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	12	16	16	12
Storage Length (ft)	63	0	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.954	
Flt Protected	0.950			0.978		
Satd. Flow (prot)	1668	1492	0	2063	2027	0
Flt Permitted	0.950			0.978		
Satd. Flow (perm)	1668	1492	0	2063	2027	0
Link Speed (mph)	30			25	25	
Link Distance (ft)	508			419	279	
Travel Time (s)	11.5			11.4	7.6	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%
Adj. Flow (vph)	145	395	241	295	310	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	395	0	536	470	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.00	0.85	0.85	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 67.9% ICU Level of Service C
Analysis Period (min) 15

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑↱	
Volume (vph)	0	0	8	537	440	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996	
Flt Protected				0.999		
Satd. Flow (prot)	1863	1863	0	1861	1855	0
Flt Permitted				0.999		
Satd. Flow (perm)	1863	1863	0	1861	1855	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	100			238	353	
Travel Time (s)	2.7			6.5	9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	9	584	478	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	593	494	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 38.0% ICU Level of Service A
Analysis Period (min) 15